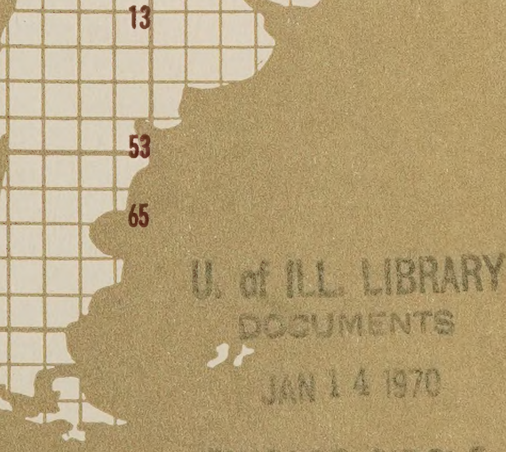


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The ECLA Secretariat assumes entire responsibility for the *Bulletin*. Its content —intended for the information both of public officials and of the general reader— was not submitted to the Commission's member Governments before publication.

EXPLANATION OF SYMBOLS

Three dots (...) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A minus sign (—300) indicates a deficit or a decrease.

A space is used to separate thousands and millions (3 123 425).

A stroke (/) indicates a crop year or a fiscal year, e.g., 1954/55.

An asterisk (*) is used to indicate partially or totally estimated figures.

"Tons" and "dollars" are metric tons and United States dollars, respectively, unless otherwise stated.

Minor discrepancies in totals and percentages are due to rounding.

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AN AGRICULTURAL POLICY TO EXPEDITE THE ECONOMIC DEVELOPMENT OF LATIN AMERICA*

I. INTRODUCTION

It is perfectly obvious that industrialization can help underdeveloped countries to increase their income more quickly than their exports and that only an industrial society can foster the spirit of technical innovation which is now a feature of the advanced countries.

World demand for primary commodities expands slowly over the longterm, not only because industrial incentives at high levels of development tend to become weaker, but also because technological advances have led to import substitution in respect of food and fibres in some countries. On the other hand, Latin American demand for manufactured goods is very elastic. There is therefore a discrepancy between the purchasing power generated by Latin American exports and the requirements of the domestic market. Industrialization is thus necessary in order to maintain the balance of payments between Latin America and the rest of the world. Moreover, industrialization makes it possible to offer more productive employment to redundant agricultural workers when conditions of full employment exist at a specific level of technique and also helps to enhance the value of agricultural commodities.

The disparity between agricultural growth and the growth of the other sectors of the economy should be examined. Agriculture[1] has developed slowly in most Latin American countries over the past few years. Where it has developed rapidly, the growth was caused by the incidental development of export products, particularly those for which there is a slowly but steadily increasing external demand.

The slow growth of agriculture has acted as a powerful deterrent to balanced general economic development. Moreover, the structural framework in which agricultural activities develop and the pattern of income distribution prevalent in that sector have also delayed the emergence of an adequate market for the absorption of the products of domestic industry.

Action to remedy the situation described above and to find ways and means of achieving the rapid development of agriculture and a more equitable distribution of agricultural income must therefore be taken without delay. This action might lead to the following:

(*a*) Use of idle or underemployed resources, particularly labour;

(*b*) Expansion of demand for industrial goods and services as well as the food and fibres produced by farmers;

(*c*) Import substitution in respect of foodstuffs and raw materials of agricultural origin — particularly those from outside the area — with a view to freeing foreign exchange which could be used to import capital equipment both in order to achieve a more rapid process of industrialization and to provide agriculture with better equipment and a higher level of technique and production;

(*d*) Avoidance of an unduly rapid process of urbanization;[2]

(*e*) Improved living and nutritional conditions in rural areas.

A faster rate of agricultural development which would have far-reaching effects on the steady economic development of Latin America would call not only for full employment of the rural labour force throughout the year but also for the widespread adoption of improved agricultural techniques. In the first stage of an effort of this kind, production techniques should be adapted to the general conditions of abundant manpower and lack of capital, without forgetting that the degree of emphasis will vary depending on the area concerned. In other words, pilot stations should endeavour to introduce techniques calculated to produce the best combination of factors through full employment of the labour force and higher

* This article is an almost word-for-word reproduction of document E/CN.12/592, prepared by the Joint ECLA/FAO Agriculture Division and submitted to the Economic Commission for Latin America at its ninth session (Santiago, 4 to 15 May 1961).

[1] The terms "agriculture", "agricultural", etc., as used here, cover agricultural activities proper (crops) as well as animal husbandry and forestry.

[2] Recent experience in Latin America shows that, in countries with a high population growth rate, the manufacturing sector — even with a very high growth rate of the product of 8 to 10 per cent annually — cannot fully absorb the natural growth of the urban labour force and is even less able to absorb redundant rural workers.

productivity by means of improved seeds, fertilizer, pesticides and hand-tools.[3] They should also seek to improve the quality of farm work and to undertake such projects as irrigation and drainage in order to lengthen the useful period of the farm year as much as possible. None of these improvements — nor the more equitable income distribution needed in order to expand the market — can be achieved without thorough institutional reforms designed to shake producers out of their present indifference to economic incentives aimed at achieving the selective increases in agricultural production required by a growing economy.

Full employment of the rural labour force may cause severe short-term disequilibria in the supply-demand balance and a surplus of food and other traditional products in Latin American countries suffering from heavy population pressure. In areas with a low percentage of rural population, a relatively high level of technique and a nearly optimum use of labour, much of the farm work will have to be mechanized in order to achieve an effective increase in production. In cases where production is uncertain because of a shortage or excess of water, full employment in agriculture cannot be attained without establishing a proper infrastructure. Moreover, improvement of means of communication to facilitate or permit agricultural development is essential throughout Latin America.

It is therefore felt that the accelerated development of agriculture in Latin America will require an intensive public works programme for the following purposes:

(*a*) to provide work for those who cannot immediately be employed in agricultural production proper because of the danger of surplus supply;

(*b*) to reduce seasonal unemployment as much as possible;

(*c*) to establish an adequate infrastructure as a basis for more efficient agriculture.

Inherent in the above programme is the construction, in due course and on a staggered basis, of irrigation and drainage works, roads, warehouses, schools and other public buildings, improvement of rural housing, etc. In order adequately to supplement this sort of escape valve for the rural labour force, processing industries suitably distributed in rural areas must also be established. Public investment in the rural sector will not only lead to the benefits already mentioned but will also compensate for the sluggish rate of investment in the Latin American agricultural infrastructure. It should nevertheless be borne in mind that, while the coefficient of foreign exchange needed for this investment is very small, it does require domestic savings. It is therefore obvious that high priority must be given to these works until the bottleneck created by agriculture has been removed. Once this has been done, however, agricultural investment should be considered in the light of other investment possibilities within the broad framework of the economy as a whole, so that priority may be given to investments which would contribute to the best relative increase in the total product.

The interest shown by countries in this type of programme as a means of relieving social tensions through accelerated agricultural development, and the possibility that international assistance in this field may increase, point to the desirability of studying the general lines of an agricultural policy for Latin America, particularly with respect to the major institutional changes required for an adequate growth rate with which to achieve the desired objectives. This task requires governmental action in agriculture and other sectors of the economy. Until now this form of guidance — which has always existed to a certain extent — has at times been incomplete, sporadic and disjointed. Hence the importance of development programming, which is essentially nothing more than the orderly arrangement of governmental action in the economic field to promote the achievement of well-defined targets for the welfare of the community.

[3] Instead of adopting "imported" methods based chiefly on labour saving through mechanization.

II. POSSIBLE BASES FOR A LATIN AMERICAN AGRICULTURAL POLICY

In spite of the efforts made and the favourable conditions which prevailed during the first ten post-war years, Latin America has not succeeded in achieving a position enabling its growth rate to exceed that of its exports. The growth rate of the product in Latin America is currently much lower than it was in the period 1945-55 and prospects for improvement seem to be somewhat limited unless the countries concerned adopt decisive measures to overcome certain obstacles, particularly of an institutional character. There are two major aspects to the problem. On the one hand, the external sector of the regional economy has weakened with the fall in prices, the deterioration in the terms of trade and the difficulty in securing outlets for agricultural (and other) products on the world market. On the other hand, the rate of expansion of the internal sector has been inadequate. The Latin American markets are growing too slowly, largely because of the unequal income distribution, aggravated in some countries during the past few years by monetary stabilization measures which were not accompanied by adequate investment programmes.

The situation created by the internal sector of the Latin American economies is largely attributable to the inadequate development of agriculture. A study of the growth rate and conditions obtaining in this sector point clearly to problems which would seem to require the urgent attention of Governments with a view to establishing a general process of expansion of the Latin American economy on a proper and durable basis.

The background to the problem of Latin American agriculture is the low average income level of the rural population. Taking Latin America as a whole, the contribution of a rural worker to the gross product is, on an average, less than one third of the contribution of a person engaged in activities other than agriculture. Moreover, available figures indicate that, in absolute terms, the differences are increasing instead of diminishing. Thus, between 1945-47 and 1955-57 the average income of a rural worker in Latin America, in terms of constant purchasing power, rose from 325 to 390 dollars, whereas that of an urban worker increased from 1 120 to 1 315 dollars.

The gap between rural and urban income is only part of the problem, because income distribution in agriculture

itself is also very uneven. Although data on this point are lacking, it is perhaps in the rural sector that the sharpest contrasts may be found. In fact, while the vast majority of small landowners, landless peasants and rural wage-earners barely earn enough to live at a minimum subsistence level, a relatively small group of large entrepreneurs and property owners have huge incomes. The average income per major category — much of it being undisclosed, particularly at the upper end of the scale — shows that the *per capita* income of the entrepreneurial group is from 20 to 40 times larger than that of the vast majority of rural workers.

Although a situation similar to that prevailing in Latin America obtains in virtually every country in the world, there are factors which help to widen the gap in underdeveloped countries and, on the contrary, to narrow the breach in those industrial countries which, in addition to their high level of agricultural technology, have a better system of land distribution. Besides the vast differences in rural and non-rural income, there are also differences in the productivity of the persons employed in the various sectors of the economy. Agricultural productivity is usually low because of the uneven distribution of property, the inadequate systems of land tenure and use, and the archaic rural labour and recruitment systems which still obtain in many areas of Latin America. To all this must be added the shortage of capital and the lack of a proper infrastructure for the development of productive activities, widespread ignorance of — or failure to apply — agricultural techniques through which a better combination of factors under existing conditions can be secured and, very often, the absence of a policy of economic incentives and of structural changes directed towards the achievement of specific development targets.

Under the conditions described above, the growth of Latin American agriculture has been sluggish in most countries during the past few years. Taking Latin America as a whole, total agricultural production and the output of foodstuffs — expressed in *per capita* terms — are now less than they were before the last war. In the few cases in which agricultural output has grown rapidly, this was achieved primarily through the incidental development of export commodities — e.g. coffee, cotton and bananas — the foreign demand for which is slowly but steadily increasing. Serious surplus problems are confronting both coffee and cotton and it is doubtful whether steady and vigorous development can be maintained on these bases. The main feature as regards banana production is the shift in the production pattern, output remaining static in Central America but increasing substantially in Ecuador.

The slow development of the agricultural sector in face of a rapid growth in population and in the total income generated by the economy has had important consequences for Latin America. On the one hand, the growing domestic demand for foodstuffs and agricultural raw materials has compelled some countries to withhold an increasing share of their staple export items, particularly meat, wheat, pulses, oilseeds and milk derivatives. On the other hand, many countries have found it necessary to expand their imports of foodstuffs to prevent a cut in supplies which might have increased existing inflationary pressures and depressed the nutritional level, already low and inadequate in large areas of Latin America.

In the circumstances, the gap between agricultural imports and exports narrowed considerably. Fortunately, the capacity to import did not suffer as much as might logically have been expected during the first ten post-war years. On the contrary, there was a marked improvement in the terms of trade as a result of which the purchasing power of net *per capita* exports declined by only 14 per cent at a time when the quantum dropped by over 40 per cent. However, the situation has changed substantially since 1957 because of the sharp drop in the price of a few agricultural commodities on the world market.

Notwithstanding the aforementioned structural defects and the relative stagnation of production, agriculture continues to be the chief economic activity for Latin America as a whole. Its contribution to the gross national product is close to 24 per cent.[4] Agricultural exports account for about two-thirds of the total value of Latin American exports. Lastly, over 50 per cent of the economically active population is engaged in farming.[5] That is why agricultural problems are so important and must be speedily solved in order to achieve a more rapid rate of general development and greater stability in the Latin American economies.

Two closely-related problems should be mentioned in this connexion. The first is linked to the level of income in the sector which has the most Latin American workers. The earlier figures include the value of foodstuffs produced and consumed in rural households. Food accounts for from 30 to 50 per cent — sometimes more — of the rural family's budget. Thus, in terms of money, the annual income per person engaged in the farm sector — particularly at the bottom of the income scale — is even lower than the figures indicate at first sight.

Moreover, rural families tend to be larger. Hence, the difference between the *per capita* income of rural and urban inhabitants is even greater than a comparison of their respective incomes per active person would suggest. Indeed, if agricultural income is divided among the total rural population, and the same is done for the other sectors, it appears that for each dollar of constant purchasing power obtained by a rural inhabitant, a person engaged in industrial activities or construction receives 4.40 dollars, in mining 11.20 dollars, and in transport and public utilities 6.10 dollars. An economy in which half the wage-earning population lives at such a precarious level must certainly be hampered in its attempts to progress and develop. Industrialization requires markets, but under the aforementioned conditions, agriculture can hardly live up to its role as a substantial consumer of industrial goods and services or even as a broader market for its own products within the framework of a balanced economic development process. Thus, agricultural income must be redistributed.

The second problem is the insufficient use of Latin American agricultural resources, particularly manpower and land. This under-utilization appears in varying degrees and forms depending upon the Latin American country concerned. While the reserve of potential labour remaining idle because of overt or seasonal unemployment cannot be readily estimated, it must indeed be large. This phenomenon is apparent from the reduced average number of days worked during the year and from the low level of efficiency of the rural worker *vis-á-vis* the growing internal demand for foodstuffs and primary com-

[4] The industrial sector, next in importance, represents about 20 per cent.

[5] The population classified as "rural" constitutes about 58 per cent of the total population of Latin America.

modities which must often be satisfied by means of imports. Thus, for example, a rural worker works an average of 218 actual days a year in Argentina, 210 in Chile, about 200 in Colombia and barely 180 days in El Salvador.[6] The position is even more serious if national averages are set aside and the particular case is considered of individual areas where farming depends on circumstances or where a single main crop is grown for export — especially, coffee, sugar, cane and cotton — and labour is needed only for a short period every year. There the rural worker only works from 80 to 100 days a year and often has to travel great distances in search of work.[7]

Moreover, it should be pointed out that in many important areas of Latin America women are not employed in agriculture but do household work. There is therefore a large potential labour force which could be used if required.

In Latin America — which has one of the highest population growth rates in the world — underemployment of the rural labour force is partly related to the unequal distribution of land ownership. On the one hand, vast areas are occupied by great estates and single-crop entrepreneurs with idle resources; on the other, there are armies of small producers — e.g., farm-owners, sharecroppers, tenant farmers, etc., — who do not have enough land to keep fully employed throughout the year. Generally speaking, between 3 to 8 per cent of the total number of farms in Latin America occupy 60 to 70 per cent of the productive land. On the other hand, between 75 and 80 per cent of the holdings cover only 5 to 10 per cent of the suitable land. To this must be added the problem of landless peasants who have no work until they are required by an entrepreneur whose production policy does not necessarily take into account the national interest as regards the general level of employment and the total supply of agricultural goods.

Besides the unequal distribution of land, other factors affect the degree of employment of the rural labour force. In areas which suffer from long dry seasons, agricultural work comes to a virtual standstill for weeks and months on end. The same happens in areas with too much rainfall, where the fields are sodden for long periods. In both cases there is a lack of communal works — irrigation or drainage — which would lengthen the work cycle. In most cases, means of communication must be extended or improved in order to permit easy access to existing or potential farmland or as an outlet for produce. Hence, what has to be done is (*a*) to redistribute land resources so that they are accessible as a means of production to all rural workers; (*b*) to improve the agricultural infrastructure and to diversify production with a view to reducing seasonal unemployment to a minimum.

Latin America must take decisive steps to attain a high rate of agricultural growth within a short period of time. Accelerated agricultural growth can help the economies of the region to embark on a period of real and steady development, mainly in three ways: (*a*) by increasing the national product; (*b*) by supplying the additional foodstuffs and primary commodities required by other sectors of the economy; (*c*) by producing a larger share of the economic resources required to raise the rate of investment.

The post-war pace of economic development in Latin America might well have been more rapid were it not for the sluggishness of the agricultural sector. In fact, while the gross national product of all other activities taken as a whole increased at an annual rate of over 5 per cent between 1945 and 1957, the annual growth rate of agriculture during the same period was similar to that for the population, namely, 2.5 per cent. Moreover, reference has already been made to the low level and unequal distribution of income generated by the agricultural sector as well as to the very low purchasing power of the rural population, who constitute the bulk of Latin America's inhabitants.

The unsatisfactory institutional framework in which farming is carried on is the most serious impediment to the development of productive activity in Latin America. There may be several reasons for this and it may appear in several forms, but it is generally characterized by the unsatisfactory distribution of land resources and the perpetuation of archaic methods — already left behind in countries with more advanced economies — in the recruitment and remuneration of labour. There are further institutional shortcomings in the educational system, the distribution of goods, the tax system and the methods used to promote agriculture.[8]

One of the chief characteristics of the Latin American economy is the inefficient and inadequate use of all the productive factors in agriculture, including the scanty capital available to the sector. From the economic and social point of view, the most pressing and obvious problem is the under-employment of labour. It would therefore not be an overstatement to say that the success of any programme of accelerated and steady development will depend upon the possibility of mobilizing this reserve labour force, Latin America's most abundant and growing resource. In view of the fact that rural inhabitants are in the majority in virtually every country in the area, the present situation could be radically altered by an effective increase in agricultural output and a better distribution of the income it generates. On the other hand, failure to improve conditions in this sector would frustrate and render ineffective for some time to come such advances as may be achieved in industrialization. International assistance, however valuable, cannot replace an effective marshalling of the rural labour force.

Economic development plans and programmes which ignore the above conditions cannot produce the desired effect, although savings and investment projections may

[6] *Sources: Argentina: El desarrollo de la Argentina* (E/CN.12/429/Rev.1) United Nations publication, Sales No.: 59.II.G.3, Vol. II; *Chile: Development Corporation (CORFO), Planning Department; Colombia: The Economic Development of Colombia* (E/CN.12/365/Rev.1) United Nations publication, Sales No.: 56.II.G.3; *Ecuador:* research by the Joint ECLA/FAO Agriculture Division carried out in co-operation with the Ministry of Development and the National Planning Board; *El Salvador: El desarrollo económico de El Salvador* (E/CN.12/495), United Nations publication, Sales No.: 60.II.G.2.

[7] In the same connexion, the example of India is worth mentioning. Its Second Five-year Plan states that "...with present techniques of agriculture being continued, if cultivating units were to approach what might be described as family holdings affording possibility of fairly full-time work in agriculture for a family of average size, agricultural production could be maintained with about 65 to 75 per cent of the number of workers now engaged in it." (FAO, *The State of Food and Agriculture,* 1959, chapter IV, p. 156).

[8] For a more detailed description of the institutional problems of agriculture, see the *Economic Survey of Latin America,* 1959 (E/CN.12/541), pp. 120 *et seq;* FAO, *The State of Food and Agriculture* 1959, pp. 133 *et seq;* FAO, *Draft report of the FAO Regional Land Reform Team for Latin America,* 1960.

ppear in theory to balance. It must be pointed out that olutions applicable to highly industrialized countries canot simply be transplanted to Latin America, where institutional reforms designed to remove obstacles inherent n the environment in which farming is carried on are s essential here as are immediate measures to solve, n a selective basis, the severe bottlenecks that continue) arise in the process of development. The tremendous otential benefits which may be derived from these reorms should be emphasized, since they probably represent one of the most promising prospects of progress in ne use of the vast human resources now idle and the ttle capital that is available.

So long as Latin American agriculture suffers from its resent high rate of unemployment — both overt and overt — the economically proper way to step up production is to find work for the unemployed. Thought hould preferably not be given to increasing the productivity of the currently employed labour force until ull employment has been achieved. It this course is ollowed, the manpower released by improved technology night provide an impetus to further expansion, thus proiding real opportunities for achieving a rising level of roduction at a correspondingly mounting level of renuneration for the worker. It would be a mistake to base rise in the production of labour-saving devices which ould just increase unemployment. Under present conitions, and in the first stage of accelerated growth, urban reas will have enough manpower available for industry ithout requiring migrant workers from rural areas. Inustry can recruit urban labour overtly or covertly unnployed and can also rely on a high population growth te in the urban areas themselves. A great many people ving in towns are either unemployed, employed partme, or engaged in activities of very low productivity ch as the retail trade, hawking, domestic and other ersonal services. Hence, an increase in agricultural proiction should be sought first and foremost through full nployment of the labour force and the adoption of improved techniques which save land and absorb manpower. hese would include public works and practices designed reduce seasonal unemployment — irrigation, diversiation of enterprises, a higher level of processing of ricultural products on the farm — the use of improved eds, fertilizers, pesticides and weed-killers, and better owing and management practices.

There are many aspects to the problem of the inequate use of Latin American agricultural resources. nderemployment of the three chief factors — labour, nd and capital — is usually one facet of a difficult and mplicated situation which, however, is not the same in e humid pampas of Buenos Aires as it is in the sierra d inter-Andean valleys of Bolivia, Ecuador and Peru. ne matter will be clearer if the area is divided into ree specific groups: (*a*) areas with a high population nsity and subsistence farming or with a single export op; (*b*) areas in which farming is uncertain because of sufficient or excessive rainfall; (*c*) areas with a higher gree of agricultural technology and diversification.

It may happen that the adoption of agricultural techques based on a combination of high labour intensity d low capital intensity — insufficient machinery — es not by itself solve the problem of the full employent of currently unemployed or under-employed reurces in areas with a high population density and a iditional or single-crop agriculture. There are many very large areas of this type in Latin America. Moreover, even if the employment problem could be solved in theory, short-term surpluses of agricultural commodities — chiefly staple foodstuffs — might be created which would not be absorbed immediately under current internal and external market conditions. That is why agricultural development programmes must be combined with rural public works projects which would:

(*a*) provide work for unemployed workers unable to find jobs immediately in agricultural production keeping them more or less in the area in which they usually live, with the consequent savings in housing, transport and urban services of all kinds;

(*b*) bridge the off-season gap, characteristic of subsistence farming and commercial farming of the plantation type, in order to absorb seasonally unemployed labour;

(*c*) increase the basic social capital and efficiency of agriculture by building dams, irrigation canals, drainage systems, soil conservation works, roads, warehouses and storerooms, etc., the operation and maintenance of which will subsequently provide opportunities for permanent employment;

(*d*) raise the effective demand for food and fibres of the rural inhabitants, who constitute the majority of the population, simultaneously and at the same rate that increases occur in agricultural production, in order to avoid surpluses or inflationary pressures on food prices in the first stages of the process of accelerated development.

In certain areas where crops depend on conditions because of insufficient or excessive soil humidity or a lack of means of communication, the first step towards an increase in agricultural production should be a very intensive public investment programme aimed at creating a proper infrastructure. In these cases a completely different situation — i.e. a food shortage — may arise for a fully employed population with a higher level of effective demand than before. The problem cannot be solved in the early stages by local production. Fortunately, the existence of food and fibre surpluses in several industrial countries — particularly in the United States — which could be obtained on special terms through aid programmes established for the benefit of under-developed countries, could overcome this difficulty without undue sacrifice.

Lastly, other solutions aimed at increasing the product must be sought in areas where the level of agricultural technique and diversification is higher and there is less underemployment of resources, or none at all at the present levels of population and technique. Here the existing technique and infrastructure should be improved but machinery would also have to be used as far as necessary.

The scope of a programme of accelerated agricultural development combined with a public works programme in rural areas has usually been under-estimated in some "models" of economic development hitherto proposed. This is largely due to the premises on which these models are based. It is considered axiomatic that the process of economic development must be based on the shift of the labour force from agricultural activities of low productivity to industrial activities and skilled services of so-called high productivity, on the assumption that full employment exists and that industry is a very dynamic sector as regards the absorption of manpower. The first hypothesis is essentially correct, but the second and third have not been borne out by recent facts in Latin America. In this connexion, the following comments should be taken into account:

(i) The labour force is not fully employed in Latin America. The problem has not been gone into very fully. However, reference has been made earlier to its nature and scope so far as agriculture is concerned. The urban sector provides multifarious and glaring examples of under-employment: hawking and a proliferation of retail trades. Moreover, the problem is magnified if the rates of industrial and population growth are projected into the future, in spite of recently high industrial growth rates;[9]

(ii) Industry has not always been able to absorb the labour force at the accelerated rate required by the increase in the product. The following figures, which are for Latin America as a whole, give an idea of the annual percentage growth rates of the volume of production and employment in the manufacturing sector:[10]

Period	*All industry*		*Light industry*		*Heavy industry*	
	Product	*Employment*	*Product*	*Employment*	*Period*	*Employment*
1938-48	5.8	3.6	5.1	3.3	7.0	4.2
1948-53	3.7	4.6	2.5	4.3	5.9	5.2
1953-58	6.2	1.6	4.2	1.2	9.0	2.3
1938-58	5.4	...	4.2	...	7.2	...

The figures for the final period considered are particularly significant because the higher growth rates of the product in manufacturing have been accompanied by rates of increase in employment in the same sector which were not sufficient to absorb even the natural growth of the active population. This problem, with which students of economics are deeply concerned, has also emerged in countries with a very high annual cumulative industrial growth rate, such as El Salvador (8 per cent), Brazil (9 per cent) and Venezuela (11 per cent). The main reason for this is that industry — in order to be efficient — develops on the basis of imported technology and labour-saving production methods that are characteristic of the advanced countries. Industry's inability to absorb labour may also be largely due to the relatively static condition of the light manufacturing industry and the development of skilled services, in which a high proportion of the active population in the major industrial centres is employed. If this is the case, then perhaps the inability of industry to absorb manpower is not chiefly a structural and technological phenomenon of industry alone, but only one aspect of the inability of the Latin American economies to raise, substantially and steadily, the incomes of the vast majority of the population;

(iii) Agriculture, which presents opportunities for investment with a very high input-output ratio, can also absorb manpower by employing it intensively in the construction of infrastructural projects requiring little capital and which, by their very nature, do not have much effect on the balance of payments;[11]

(iv) Agricultural growth in under-developed countries does not necessarily require the use of imported labour-saving methods nor the same degree of mechanization as is found in industrial countries. Agricultural productivity can be raised by introducing an indigenous technology based on the intensive use of manpower working with hand tools, small machines, fertilizers, pesticides, etc., and on improvement of the soil through irrigation, drainage and the construction of conservation works.

This does not in any way imply that the rate of industrialization should either be arrested or slowed down. On the contrary, the argument implies the need for even more rapid industrialization, but supported by a sound and vigorous agriculture, with a higher effective demand than at present.

Some of the theoretical schemes for accelerated economic development proposed for Latin America[12] assume a *per capita* income growth rate so high that (*a*) low-income groups would immediately find their living conditions improved as a result of the combined effort called for in the programme; (*b*) there will be a gradual but steady narrowing of the income distribution gap which will not be such as to discourage private investment. In other words, growth must not only be continuous, but, at the same time, its rate must permit a redistribution of income while maintaining, in absolute terms, the position of the high-income groups which lose in relative terms.

The desirability or possibility of redistributing income growth, or the need for additional measures, can only be determined in the light of the specific conditions obtaining in each country. In any case, the speed of development proposed by such schemes and the redistribution of income can be expected to increase the demand for food and other items to such an extent that the agricultural product — particularly in the domestic consumption sector — would have to grow at an annual cumulative rate of 4 to 5 per cent, i.e. almost twice the figure registered in recent years.

In order to achieve this high growth rate in an activity where output has always been slow to develop, and to effect a significant income redistribution, action will have to be taken to redistribute the land and to ensure its more productive use. Among the most stubborn obstacles arising from the inadequate institutional framework in which farming is currently carried on is the indifference of many producers to price incentives and technical progress. The owner of a large estate is not interested in investing more in agriculture and increasing his income from that sector, since he cannot do so without additional managerial and administrative staff. He prefers to use his present methods of working on his estate and to invest his profits therefrom in business, industry and other urban activities which are easier to control, present fewer risks and provide a high yield. As population pressure grows, the conditions under which labour is recruited and paid become more stringent because, in the final analysis, it is the landowner who possesses that scarce resource — land. On the other hand, in those cases where better farming practices have been applied, the extra profit usually goes to the landowner.[13]

The small landowner — whether he works his own plot of land or one belonging to someone else under the

[9] See, for example, chapter III of the *Analysis and Projections of Economic Development. VI. The Industrial Development of Peru* (E/CN.12/493), United Nations publication, Sales No.: 59.II.G.2.

[10] *Source: Patterns of Industrial Growth*, 1938-58, United Nations publication, Sales No.: 59.XVII.6.

[11] This is true both in respect of the need to import the few capital goods required for this type of work and of the consumer demand it would generate, which normally would have to be met out of internal resources or — in the specific cases mentioned — by importing surpluses payable in local currency.

[12] See *Economic Development and Problems of Social Change in Latin America*, by Jorge Ahumada (ST/ECLA/CONF.6/L.A-1).

[13] An example of this may be given, based on observations made in many areas of the Andean sierra and *altiplano*. The daily wage for ploughing and planting a hectare of potatoes is "a furrow of potatoes" one hundred metres long which the labourer culti-

share-cropper, *inquilinato* or *huasipungo* system — produces food for himself and his family. The small size of his plot and his lack of capital prevent him from solving problems inherent in the use of modern farming techniques: irrigation, drainage, soil conservation and use of production factors. This type of farmer is usually outside the monetary economy and he can hardly respond to incentives based solely on price increases.

There are therefore several reasons why land reform is both essential and urgent. Elimination of the inefficient small holding and the subdivision of large estates which do not make full use of their resources should not be considered mere social welfare measures but a prior condition to development from a purely economic point of view. In other words, the institutional framework must be changed in order that the instruments of the capitalist economy may function.

However, land reform alone will not by itself ensure fulfilment of the objectives of accelerated growth and income redistribution. New farmers must be given greater economic incentives to produce, and this requires a change in the terms of trade in favour of agriculture for the domestic as well as for the export market.

The first measure will require co-ordinated action designed to raise the prices actually received by the farmer. This must be done through (*a*) improvement of distribution machinery in order to reduce marketing margins and thus to increase the farmer's profits without placing the burden on the urban consumer (the efforts of efficient farmers, particularly those producing for the domestic market, are often vitiated at present by the action of speculators, distributors and other middlemen who sometimes also act as money-lenders and absorb the price increases which the consumer has to pay); (*b*) a reduction in the protection afforded to domestic industrial monopolies which force farmers to pay unduly high prices for production factors (it is only fair that industries protected by customs tariffs, income tax exemptions, low-interest loans backed by the State and other advantages, should submit to strict price controls); and (*c*) the granting of subsidies and credit to farmers for the purchase of equipment, tools, fertilizers and other input which enable them to increase their efficiency and cut unit costs.

vates for himself. However, when fertilizer is added and the yield is trebled, the owner prefers to pay cash wages equivalent to the value of the product of the original furrow and to keep the rest for himself.

The second measure will require a greater degree of co-operation among the Latin American countries themselves, with other under-developed countries producing primary commodities, and with the highly developed countries, so as to negotiate long-term multilateral agreements for trade in primary commodities which would guarantee quantities and prices within certain limits. Arrangements of this kind cannot be made unless producers agree explicitly to keep supply within limits consistent with demand in order to avoid the accumulation of unmanageable surpluses. These arrangements — most important as a means of ensuring the continued action of external incentives in the Latin American economies and the supply of foreign exchange to finance imports of capital goods required chiefly by industry — would not only apply to traditional products which form the bulk of current trade, but also to a series of "new" products in which Latin America is comparatively at an advantage over countries in the northern hemisphere because of its tropical climate and the reversal of the seasons. The programmes of economic integration and liberalization of inter-Latin American trade which have already been launched might provide excellent opportunities for furthering the objectives outlined in these pages. A well-defined agricultural integration policy, for instance, would help to promote import substitution within the broader context of Latin America's total resources and would expand the consumer markets for some items for which outlets cannot easily be found in the traditional markets.

III. POSSIBLE INSTRUMENTS AND MEASURES FOR AGRICULTURAL DEVELOPMENT

In order to achieve the objectives of a policy of accelerated agricultural development and redistribution of income, Governments could give earnest consideration to a series of instruments and measures. All of them are proper subjects for broad international co-operation. They cannot be carried out efficiently unless a development programme is formulated for each specific case and programming machinery is established on a continuous and permanent basis. This is not the place to go into details concerning the establishment and functioning of that machinery, particularly since both ECLA and FAO have been concerned with the structure and application of an agricultural development programming technique within the context of over-all economic development. It should be pointed out, however, that the measures listed here are calculated to form a consistent whole and should be applied simultaneously. If any one of them can be considered a prerequisite to the success of the others, it would certainly be land reform.

1. Investment in rural public works and in the improvement of the rural infrastructure

The chief objectives of public investment in agriculture are to provide full employment as soon as possible to all rural workers who — in accordance with the targets of agricultural production — are unable to find immediate employment in agriculture proper, to eliminate seasonal unemployment and to provide agriculture with the means for producing efficiently. The most important projects to be carried out should include, in principle, the following:

(*a*) dams, tapping of rivers, canals and other irrigation works wherever feasible;
(*b*) levelling of irrigated areas to make better use of the water;
(*c*) drainage canals and other works to clear swampy farmland;
(*d*) terracing, tree-planting and other soil conservation measures wherever required by the topography and condition of the land;
(*e*) construction of roads of all kinds both to improve communications in existing agricultural areas and to open up new areas;
(*f*) building of warehouses, silos and storerooms for the storage and orderly distribution of products;
(*g*) improvement of rural housing and public buildings, particularly the building and reconditioning of schools.

The scope of the action taken must be in proportion to the labour requirements arising out of the agricultural production programme proper. Thus, projects being carried out with seasonally unemployed labour should be suspended or slowed down during the busy season (harvest time). The extent to which machinery and other imported capital and intermediate goods are used should be studied carefully with due regard to the following:

(*a*) the pressing need for infrastructural projects with which to achieve the increases in agricultural production required by the economy;
(*b*) the available supply of foreign exchange, taking into account the equipment requirements of industry, energy and transport.

Generally speaking, these public works do not require a high input of capital and labour and do not therefore affect the balance of payments by needing substantial imports of equipment. A given amount of foreign capital invested therein may and often does have a greater effect on capital formation in agriculture than in industry. Taking machinery and intermediate goods as an example, very little would have to be imported in order to build an irrigation system or a road, which represent capital formation based chiefly on local resources. For smaller works, machinery may be dispensed with altogether, and only locally available labour need be used.

Under these conditions, the problem of financing this type of work can be reduced to manageable proportions so far as foreign exchange is concerned and does not present insoluble problems with respect to local currency. Nevertheless, a public works programme of the magnitude envisaged here might place a considerable financial burden on any Latin American country, particularly those with a very inadequate infrastructure and where nature is particularly stern. In some cases, it might perhaps be necessary to introduce methods representing a minimum cash outlay. In other words, an attempt might be made to induce farmers who will derive direct or indirect benefits from the public works programmes to participate in the work of carrying them out, particularly in the case of smaller works the purpose and desirability of which is readily appreciated by rural communities.

The study of investment alternatives should not be carried too far. Rapid and prompt action seems to be a prerequisite to success, and in this connexion attention should immediately be given to the early, direct benefits to be derived from the projects under consideration. To await a detailed analysis of the cost-profit ratio of investments in minor irrigation works when a feasible major irrigation project has already been studied would be tantamount to impeding progress and losing time which it would be most difficult to make up later.

2. Land reform and supplementary measures

(a) *Land reform*

The main purpose of land reform as an instrument of economic and social development is the redistribution of income and the increase of productivity. Land reform calls not only for settlement programmes to develop virgin State-owned land and schemes and for the regrouping of small holdings into units of more efficient size, but also — and these are its primary purposes — the redistribution of large holdings, a complete change in the relationship between labour and employers still existing in certain areas and certain types of agriculture in Latin America, and also the establishment of minimum wages and social security systems. In addition, land reform is considered necessary to overcome the indifference of many producers to the economic incentives designed to help achieve the selected increases in agricultural output which a growing economy demands.

The mere redistribution of land resources will not by itself guarantee expeditious, spontaneous and immediate agricultural growth. So profound a change requires the simultaneous solution of many problems and changes in many aspects of the institutional framework of agriculture which are different from that of land tenure and bear no relationship to it. To achieve the aims referred to — increases in production and productivity, redistribution of income and the broadening of the market — over-all agrarian reform should be bolstered by such services as will ensure that the new landowners can accurately measure demand and co-operate in fulfilling the production targets set in the development programme. From a political point of view, there should be no insuperable obstacles, so long as the present landowners are properly compensated in accordance with the customs and circumstances of each country.

The financing of land reform — above all the payment of compensation to the former landowners — is usually considered to be more or less impossible. This is not, however, true, and for the following reasons:

(i) Many of the present producers — particularly in *latifundia* and *minifundia* — are producing at the lowest levels of efficiency. As rural reorganization of the type outlined here would make for a considerable increase in yields, the new producers could contribute to the payment of compensation over a suitable term and it would not then be necessary for the State to assume additional obligations;
(ii) In cases where, for internal reasons, compulsory land reform cannot be carried out, and in other cases where the expropriation and reorganization of farms must proceed over a relatively long period, a possible solution would be to levy taxes directly proportionate to the productive capacity of the land. Such taxation would make it possible to hasten the process of splitting up the land owned by inefficient producers, as they would then be obliged to sell their land or hand it over to the State. Although much has been said about how well-administered tax measures would in themselves be sufficient to achieve the aims of land reform, such methods might well prove too slow and would furthermore require highly efficient administrative machinery. Tax measures are therefore suggested here as ancillary to land reform. Their execution would first require the establishment of a land map and register, which would be costly and require specialized teams and experts, although international co-operation might well be forthcoming in this connexion.

At all events, it should be stressed that taxation of idle or ill-managed land is a necessary instrument of land reform, although for reasons different from those just outlined. The "price" of the productive factor that is land

is unnecessarily high for various reasons; among these mention may be made of the relative scarcity of easily accessible fertile land, the social prestige attaching to land ownership in Latin American society, the reserve value that land represents in inflationary conditions, the tax evasion which it permits, etc. In such circumstances, land — in terms of yield on capital — seems a poor business proposition in comparison with investment in other sectors. The introduction of taxes involving a compulsory increase in the supply of land on the real estate market would tend to reduce the price of land and, as a result, raise the economic potential of agricultural concerns. To the extent that such an aim could be achieved, private investment in agriculture and the use of land as a productive factor would increase.

(b) *Education and training of personnel*

One of the main factors affecting productivity is the level of education of the rural population. In this respect, there are differences between the various countries of Latin America; the most notable of these, however, is the difference between educational levels in rural areas and urban centres. The difference between the educational facilities provided in the two sectors is very wide and places the rural areas in an extremely precarious position. Consequently, the absorption of new agricultural techniques and knowledge is made very much more difficult. Illiteracy, which is prevalent among the rural population, is no the best of allies for technical progress.

In addition to their inadequacy, rural education services are in many areas used much less extensively than the educational facilities provided in towns. It is well known that attendance at rural schools is low — particularly in the seasonal periods of high labour demand — and that the average period of attendance by pupils is extremely short; as a result full advantage is not taken even of the slight educational facilities offered. Accordingly, the need is not only one of increasing the number of schools and teachers but also of reforming the type of instruction provided in rural communities, placing greater emphasis on practical training in more efficient work methods in order to give greater encouragement not only to pupils but also to parents.

At other levels, intermediate instruction should be given in schools of applied agriculture, engineering and rural crafts, and the training of experts and research workers in matters connected with agriculture should be increased. As regards the latter point, consideration should be given to the need for a higher degree of specialization in present courses in agricultural science.[14]

(c) *Research and extension services*

To achieve a swift increase in production and an improvement in productivity, the use of more advanced farming methods and practices must be introduced and made general. Such methods must, however, be adapted to the characteristics of the agricultural economies of the Latin American countries. This remark is meant to show that there is no need to transfer to Latin America the type of technology which is labour-saving by nature and is characteristic of the industrialized countries. The pursuit of higher standards of technique implies in many cases the need to:

(i) investigate the best possible techniques in each case by developing the most productive seeds, plants and livestock, as well as the best methods of cultivation, livestock care and feeding, application of fertilizers, insecticides, use of irrigation water, spacing, etc.;

(ii) disseminate such knowledge widely among all producers through a well-equipped extension service;[15]

(iii) closely supervise inexperienced farmers through the same extension services to ensure the correct use of the new techniques during the period of apprenticeship and training which will doubtless be necessary.

In addition, extension services can help to improve the educational levels of the adult rural population. The dissemination of information on farming methods is really a type of education carried out mainly on the farm and in the home. Its chief purpose is to explain the production and marketing methods which will bring about an increase in income, and to teach rural families how to achieve a more comfortable standard of living. Although for practical reasons it is sometimes advisable to concentrate on teaching only a few subjects at a time, one of the important aims of this service would be to make farmers more receptive to new ideas so that they can themselves seek the most suitable ways of improving their farms.

(d) *Marketing*

The markets for agricultural products in Latin America suffer from a strong tendency to price instability. Among the factors accounting for this are (*i*) the seasonal nature of harvests; (*ii*) the difficulties standing in the way of making output match demand, owing to uncertainty about weather conditions and yields; (*iii*) the low price-elasticity of demand for some agricultural items in the high-income level importing countries; and (*iv*) the delay with which — and sometimes the contradictory manner in which — supply responds to movements in the prices paid to the producer.

Accordingly, to achieve the increases in supply which a developing economy requires, and to raise the income levels of producers,[16] it is essential to improve marketing systems by building warehouses, silos, refrigeration plants, storage facilities and distribution centres; by improving transport facilities and handling and classification methods; by establishing market information services and eliminating monopolistic interests and other middlemen who serve no useful economic purpose. In present circumstances, a very high percentage of the price paid by consumers for agricultural commodities remains in the hands of money-lenders and intermediaries, to the detriment mainly of the small farmers. The lack of storage facilities leads to considerable wastage of agricultural products and this has direct repercussions on farmers' incomes. Inefficient marketing tends to rob farmers of the favourable effects of expanding demand. The efforts made by a number of Latin American countries to im-

[14] See Alvaro Chaparro, *Un estudio de la educación agrícola universitaria en América Latina,* Rome, FAO 1959.

[15] In this respect, it seems that the problem is frequently not one of lack of knowledge, but the inability of the majority of farmers to put it into practice to any great extent.

[16] See J. C. Abbott, "The Role of Marketing in the Growth of Agricultural Production and Trade in Less Developed Countries", *Monthly Bulletin of Agricultural Economics and Statistics,* Vol. IX, No. 9 (FAO, Rome, September 1960).

prove marketing standards have not only improved output and raised farmers' incomes but have also contributed to reducing the prices paid by the consumer.

(e) *Credit and subsidies*

In most of the Latin American countries the agricultural credit institutions are unable — for want of funds or owing to legal limitations, especially with respect to acceptable securities — to give effective support to an agricultural development policy such as that outlined in the present article. The availability of liberal credit facilities adapted to the real requirements and the juridical characteristics of the new enterprises created by agrarian reform is an essential requisite if these latter are to be in a position to equip themselves properly and purchase the inputs required by modern technique. The system of "supervised credit", which has been successfully tried out in several parts of Latin America, might be extended to benefit all the new agricultural entrepreneurs. Under this system, the granting of loans is linked to the programming of farm management in co-operation with the agricultural extension and marketing services and those concerned with the improvement of rural living conditions. In determining the value of the security required, the consideration which carries most weight is the borrower's capacity for payment, assessed with due regard to the possible result of the combination of the resources at his own disposal with the credit, extension services and administrative assistance made available to him. By its very nature, "supervised credit" is costly. But as the importance of its educational and formative aspects is appreciable, the educational costs of credit should be set apart, so that they are imputed not to the loan, but to special items in the national budget or to international funds that might be earmarked for this purpose.

In addition to the type of subsidy referred to in the foregoing paragraph, consideration might be given, in accordance with each country's circumstances, to the granting of subsidies for the purchase of seed, stud animals, fertilizers, pesticides and machinery. Similarly, the transport of these inputs and of the farm produce itself might be subsidized. By these means, the farmer's real earnings could be improved without the urban consumer's being saddled with price increases. The burden could thus be shifted to the taxpayer, who bears a share adjusted to his income level.

(f) *Industrialization in rural areas*

The establishment of rural industries, and the decentralization of industrial development in general, constitutes another means of providing employment for rural labour without speeding up migration to the towns. This type of work could be arranged on a part-time basis to avoid reducing the manpower contingents available at busy seasons. It should be noted that many rural industries entail substantial capital investment, and sometimes seem to be more highly capitalized than certain of the large-scale urban industries in relation to their volume of production and the amount of employment they provide.[17]

The industries that seem best suited to the rural environment are connected mainly with the transforming of agricultural commodities and include dehydrating and packing of fruit and vegetables, extraction of oils, tanneries, dairies, mills, sawmills, etc. Also of interest are those producing articles and utensils to serve the immediate purposes of farms or works for public use — such as bricks, tiles, doors, windows and frames, cordage, and clay or earthenware household utensils — as well as the repairing of machinery and the manufacture of simple tools.

(g) *Living conditions*

A very important aspect of the problem, which is closely related to the question of public investment in rural areas, is the direct improvement of the living conditions of country families. In many parts of Latin America — particularly in the tropics — it is essential that the rural areas be sanified and the diseases which reduce the population's energy and capacity to work (such as malaria and filariasis) be eradicated. Again, the problem of housing for settled families — already discussed in connexion with the public works programme — has an important counterpart in respect of the migratory labour force, which, in moving from place to place, often has to work in highly unsatisfactory conditions in the areas where coffee, cotton, sugar-cane, etc. are grown. An urgent need in these areas is the setting-up of conveniently-situated camps where the migrant workers and their families will find decent accommodation, schools, medical attention and other services. Such camps would also enable the necessary nutrition programmes to be arranged, especially for children.

(h) *Co-operatives*

The establishment of a new institutional framework for Latin American agriculture, such as that described, might encounter serious difficulties with regard to the organization of the area affected by land reform in suitable farm units capable of absorbing modern techniques. One method of solving the problem might consist in the organization of co-operatives. In this connexion, consideration would have to be devoted to two principal cases: (*i*) the organization of currently independent small-scale producers, who are running farms of very limited size; and (*ii*) the management of large estates affected by the reform. Lack of financial and administrative capacity would make it difficult for the former to achieve the desired production and income increments. In the case of the latter, the mere division of the land into smaller units might, in an initial phase, force down efficiency and production to levels lower than those already attained. The formation of co-operatives which would permit the application of techniques proper to large-scale production might be a means of circumventing this stumbling block. The experience of other regions shows that the success of such a measure depends upon the introduction of specially trained managers who will bring to the co-operatives the benefit of their skill as leaders and organizers. Centralized accounting and auditing systems should also be established.

From another point of view, co-operatives may play an efficacious part in the organization of agricultural credit, commodity marketing and the establishment of rural industries.

3. Liberalization of inter-Latin American trade

The trade integration and liberalization programmes now being launched would afford a good opportunity to expedite the attainment of the objectives sketched out in

[17] See FAO, *The State of Food and Agriculture 1959* (Rome).

the various sections of this paper. In addition to basic institutional reforms, Latin American agriculture needs potent incentives to break the vicious circle in which it is developing at present and reach increasingly high aggregate levels of production and productivity. The expansion of markets resulting from the new arrangements and the possibility of much more efficient utilization of resources would create the right combination of circumstances for the achievement of these objectives. Consequently, if the limitations in respect of agriculture which characterize some of the programmes already under way are perpetuated beyond what might be regarded as a reasonable initial period of readjustment, they might perhaps retard the success of the said programming of economic integration and accelerated agricultural development. One way of mitigating the adverse effects of such provisions would be to adopt measures aimed at the gradual elimination of the real obstacles and at dissipating the apprehensions at present entertained with respect to the agricultural sector's full participation in the integration process. Such measures would primarily involve two basic aspects: (*a*) formulation of the principles that should be incorporated in a properly co-ordinated agricultural policy for countries on the road to integration; and (*b*) creation of adequate consultation facilities for the purpose of solving common problems at the regional level and, in general, for the periodic comparison of the measures being applied by the various countries in order to adapt the agricultural sector to the overall requirements of successful integration.

It would be well for the Governments concerned to make a careful study of general objectives and targets, as well as of particular cases, in order to establish the bases for an agricultural policy forming part of the economic integration programme. Presumably, however, the main objective of such a policy would be to place agriculture in a position to take the maximum advantage of the opportunities afforded by economic integration, as well as to contribute as far as possible to the ultimate success of integration programmes.

In order to adopt appropriate decisions, the Governments taking part in integration programmes would need to initiate a detailed analysis of the differences among their countries in respect of costs, prices, yields, overall productivity, current cultivation techniques, distribution and marketing practices, etc. In certain cases, some crops may be superseded by others as the result of integration. But there would be no reason for doubt as to the beneficial results of such measures, provided that the producers' income levels were satisfactorily maintained during the process, and that the changes took place gradually and on well-ordered lines.[18] Moreover, integration appears to be the only way of eliminating the restrictions which at present burden inter-Latin American trade in agricultural commodities, and which would seem likely to continue in force until farmers become convinced that increased specialization, far from injuring their interests, is one of the most effective means of improving their situation.[19]

[18] For fuller discussion of the questions relating to the liberalization of inter-Latin American agricultural trade, see the report *The role of agriculture in Latin American common market and free-trade area arrangements* (E/CN.12/551).

[19] This is, of course, a general approach to the problem. In fact, in specific situations the aim pursued might, on the contrary, be a lower degree of specialization. A case in point would be the need to diversify agriculture in large coffee-growing areas.

THE DEMOGRAPHIC SITUATION IN LATIN AMERICA*

The following pages constitute neither a complete nor a definitive survey of demographic conditions in Latin America. Many of the estimates used in it are subject to constant revision; and some will have to be put into much more final form as a result of the new censuses to be held between 1960 and 1962 in the majority of the countries. These censuses will also contain detailed information on population aspects for which, in the case of some countries, an intercensal time comparison can be accurately calculated for the first time. Similarly, it is hoped that the censuses will enable an effective design to be made of surveys, which are essential if data on various other important aspects are to be obtained.

Systematic efforts have recently been made to secure a picture of the demographic situation and trends in Latin America. This was a result of the joint study programme being undertaken at Santiago, Chile, by ECLA and the Latin American Centre for Demographic Training and Research (CELADE) acting in collaboration. In due course, it should be possible to prepare up-to-date reports on particular features of the Latin American population that have a bearing on economic and social development. Such studies will be based on a more careful investigation of the way in which social and economic conditions determine and are determined by each component of population changes.

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I. POPULATION SIZE AND RATE OF GROWTH

1. Latin America and the rest of the world

The population of Latin America, now about 200 million, is increasing at a more rapid rate than that of any other region of the world of comparable size. The current annual increase of about 5 million (2.5 to 2.6 per cent) exceeds that of the United States (about 3 million) and of the Soviet Union (about 3.5 million). The population of Africa may now be increasing by 4 million annually, and that of Europe (excluding the Soviet Union) by about 3 million. The annual increments in the populations of India and China (mainland) are larger, but these two big countries have twice and three times as many inhabitants as Latin America.

In 1850, the combined number of inhabitants of all the Latin American countries probably totalled about 33 million,[1] i.e., less than the population of France at the same time. Today, the population of Brazil alone equals at least that of France, Belgium and the Netherlands combined. Argentina, with 1.7 million in 1869, which was then about the same as the figure for Denmark, is now more populous than Denmark, Finland, Norway and Sweden combined. Mexico's population has recently become larger than that of Spain. Other Latin American countries which were hitherto no more heavily populated than some province of a European country, may now be compared to countries like Czechoslovakia, Greece, Portugal or Sweden.

The prodigious increase in the population of Latin America is also of relative importance, despite the considerable growth of population elsewhere in the world. The 33 million Latin Americans of 1850 represented 3 per cent in a world population of about 1.1 thousand million. Today, more than 200 million strong, they constitute almost 7 per cent in a world population that falls slightly short of 3 000 million. By all indications, this increment, both relative and absolute, may be expected to continue.

[1] Estimates by Willcox and Carr-Saunders.

As calculated by the United Nations,[2] the population of Latin America may well exceed 300 million by 1975 and total almost 600 million by the end of the century (see table 1). As a result, it will successively exceed other populations, even though they are also growing. The population of the United States was overtaken in 1942, and that of the United States and Canada together in about 1955. Latin America may overtake the Soviet Union by 1965, Africa by 1975, and Europe (excluding the Soviet Union) towards the end of the century. While the accuracy of these estimates may be open to question, they are nevertheless indicative of the comparative growth potentials inherent in current trends and observations.

2. Recent and expected population growth of Latin American countries

Rates of population growth are not uniform throughout the region. A completely valid comparison of current national rates of population increase will have to await the result of the new census. The official and unofficial population estimates recently published by the secretariat[3] vary in accuracy, partly in respect to the dates on which censuses were taken. Errors of comparison have been reduced to the minimum by a selection of estimates and projections for the middle of each decade, such as those presented in table 2 and in the descriptive figure. While not highly accurate, the comparison is undoubtedly significant.

From 1935 to 1955, when the population of the entire region increased at an average annual rate of 2.2 per cent, this figure was exceeded in Mexico, Colombia, Venezuela, Ecuador, the Dominican Republic, and most of the

[2] *The future growth of world population* (ST/SOA/Ser.A/28), New York, 1958, United Nations publication, Sales No.: 58.XIII.2. In addition to the population of the twenty republics, the figures include that of dependent areas in the Caribbean, and of the Guianas.

[3] See *Statistical Supplement* of the *Economic Bulletin for Latin America*, Vol. V, Santiago, Chile, November 1960, pp. 8-17.

Table 1

POPULATION OF LATIN AMERICA AND OTHER WORLD REGIONS 1900-1960, AND PROJECTIONS FOR 1975 AND 2000

(Millions)

Year	*Latin America*[a]	*Northern America*[b]	*Soviet Union*	*Africa*	*Europe*[c]	*Asia and Oceania*[c]	*World*
1900	63	81	115[d]	120	308	863	*1 550*
1925	99	126	165[d]	147	340	1 030	*1 907*
1950	163	168	181	199	393	1 393	*2 497*
1975	303	240	275	303	476	2 231	*3 828*
2000	592	312	379	517	568	3 899	*6 267*

Source: United Nations estimates.
[a] America South of the United States.
[b] America North of Mexico.
[c] Not including any part of the Soviet Union.
[d] Rough estimate, according to present boundaries.

Central American countries. In Haiti, Bolivia and Uruguay, on the other hand, the rates were considerably lower.

The expected acceleration of growth in the entire region is reflected in the population projections for almost every country, with the significant exceptions of Argentina and Uruguay, where the rate of population growth is relatively slow and diminishing. Again, the countries in which the growth rate is expected to be above average are Mexico, Colombia, Venezuela, Ecuador, the Dominican Republic and the Central American republics.

At present, the population increases by 1.5 million persons each year in Brazil, and by 1 million in Mexico. In Argentina and Colombia the annual increments are about 400 000 persons respectively, and in Guatemala 100 000. Uruguay's population, which is the slowest in growing, is being surpassed successively by the population of Guatemala, the Dominican Republic and El Salvador.

3. Acceleration of population growth and its causes

The rate of population growth in Latin America has been rising with increasing momentum for some time. The regional population (including that of the dependent areas) grew from about 20 million in 1800 to 33 million in 1850 and 63 million in 1900 at an annual rate of 1.0 per cent during the first half-century and of 1.3 per cent during the second. According to calculations by the United Nations, it reached 99 million in 1925, 163 million in 1950, and may reach 303 million by 1975. These figures imply average rates of 1.8, 2.0 and 2.5 per cent for the three twenty-five year periods, with a significant acceleration from about 1950 onwards.

Table 2 gives the following indications for Latin America as a whole:

Table 2

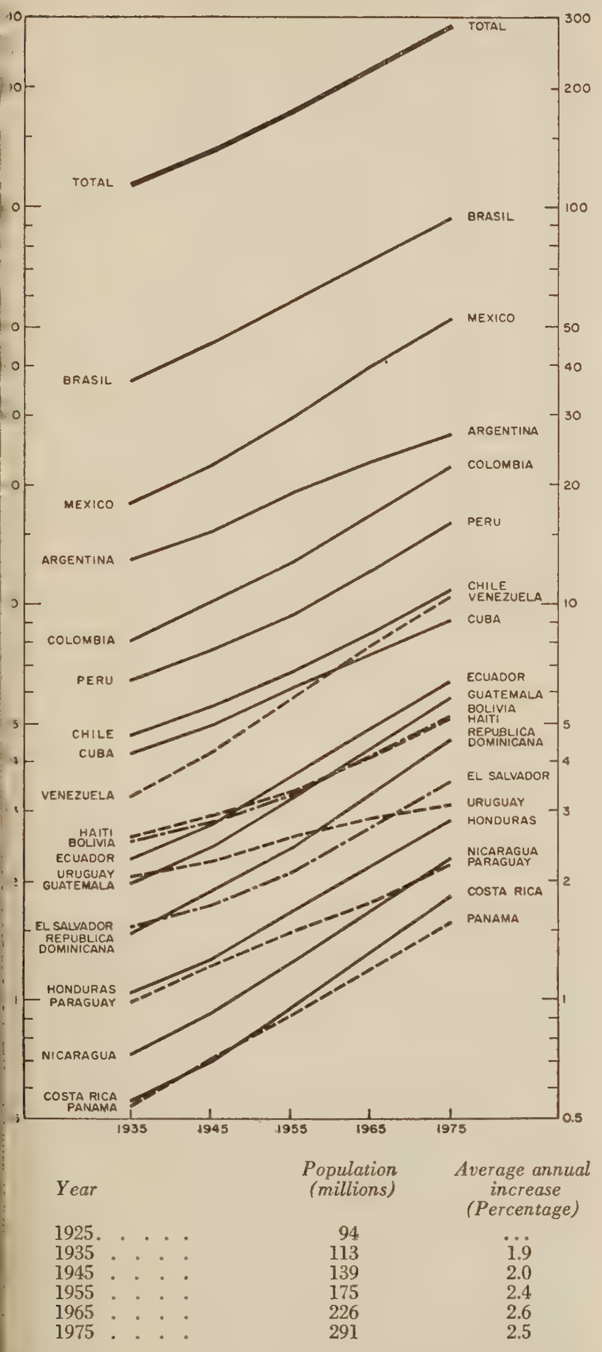
POPULATION ESTIMATES FOR THE TWENTY LATIN AMERICAN REPUBLICS, 1935-1975 AND AVERAGE ANNUAL RATES OF INCREASE

Country	*Estimated population (thousands)*					*Average annual rates of increase (percentages)*	
	1935	*1945*	*1955*	*1965*	*1975*	*1935-55*	*1955-75*
Brazil	37 150	46 215	58 456	74 572	95 788	2.3	2.5
Mexico	18 089	22 576	29 679	40 635	53 561	2.6	2.9
Argentina	13 044	15 390	19 122	22 959	27 120	2.0	1.7
Colombia	8 199	10 152	12 836	16 985	22 702	2.3	2.9
Peru	6 483	7 727	9 396	12 420	16 382	1.9	2.8
Chile	4 700	5 541	6 761	8 581	10 800	1.9	2.4
Cuba	4 221	4 932	6 131	7 553	9 183	1.9	2.0
Venezuela	3 300	4 267	5 882	8 081	10 779	3.0	3.0
Haiti	2 581	2 928	3 388	4 133	5 209	1.4	2.2
Bolivia	2 540	2 850	3 334	4 152	5 299	1.4	2.4
Ecuador	2 296	2 781	3 691	4 912	6 446	2.5	2.8
Uruguay	2 030	2 256	2 615	2 896	3 143	1.3	0.9
Guatemala	1 996	2 438	3 258	4 320	5 902	2.6	3.1
El Salvador	1 531	1 742	2 109	2 730	3 571	1.7	2.7
Dominican Republic	1 484	1 889	2 454	3 319	4 605	2.6	3.2
Honduras	1 042	1 261	1 660	2 179	2 819	2.5	2.7
Paraguay	988	1 247	1 498	1 779	2 214	2.0	2.0
Nicaragua	728	923	1 245	1 692	2 269	2.8	3.0
Panama	546	703	914	1 206	1 587	2.6	2.8
Costa Rica	551	695	951	1 335	1 827	2.9	3.3
Total twenty republics	113 499	138 513	175 380	226 459	291 206	2.2	2.6

ESTIMATED AND PROJECTED POPULATION FOR LATIN AMERICA AND FOR EACH OF ITS 20 REPUBLICS, 1935-75

(Millions of inhabitants)

SEMI-LOGARITHMIC SCALE



Year	Population (millions)	Average annual increase (Percentage)
1925.	94	...
1935	113	1.9
1945	139	2.0
1955	175	2.4
1965	226	2.6
1975	291	2.5

he sharp spurt which occurred around 1950 and is ill continuing may eventually come to an end, at least ccording to the population projections selected for the ove mentioned *Statistical Supplement*. What are the asons for the recent marked recovery and what possi-lity is there of attaining a peak rate in the near future?

Rates of population growth are determined by birth rates, death rates and, in relation to Latin America, by inter-continental migration. Immigration from Europe, especially to Argentina and Brazil, occurred on a large scale mainly from about 1880 to 1930. This movement may have considerably accelerated the growth of a regional population which, at the turn of the century, was still comparatively small. The temporary revival of immigration about 1950, mainly to Argentina and Venezuela, had an appreciable effect on these two countries, but comparatively little on a considerably expanded regional population.

According to the information available, birth rates were very high throughout the region — about 45 per 1 000 if not higher — until early in the present century. They are still at that level in most Latin American countries, no significant change having taken place. If, despite immigration, rates of growth were no more than about 10 to 15 per 1 000, the death rates must generally have been more than 30 per 1 000, or may even have reached 35 per 1 000. Expectation of life at birth must have averaged little more than 30 years for the region as a whole.

There has probably been no significant rise in birth rates in any country of the region. True, in some instances the statistics seem to indicate otherwise, but the evidence is open to doubt.[4] On the other hand, birth rates fell sharply around 1930 in Argentina and Uruguay, and to a lesser extent or more recently in Chile, Cuba and southern Brazil.

The acceleration of population growth, in relation to the declining importance of inter-continental migration and constant or, in some countries, falling birth rates, is predominantly the result of sharp reductions in mortality.

Earlier in the century, reliable vital statistics were an exception in Latin America. For 1911-13, the following recorded birth rates are perhaps indicative: 49.0 per 1 000 in El Salvador, 47.0 in Costa Rica, 39.9 in Chile, 37.4 in Argentina and 32.4 in Uruguay. In the same period, the following death rates were recorded: 31.0 per 1 000 in Chile, 25.0 each in Costa Rica and El Salvador, 16.8 in Argentina and 13.5 in Uruguay. It is probable that birth rates of the order of 45 and death rates of the order of 30 per 1 000 were the general rule in Latin America at the beginning of the century, and in most of the countries even more recently.

Registration of births and deaths has now improved in many Latin American countries, and independent estimates of birth and death rates have also been made and published by the secretariat (see table 3). Nevertheless, additional estimates are still needed where the available data are not up-to-date or fully reliable.

In at least fifteen of the twenty republics, the most likely estimates of the birth rate remain within the range of 40 to 50 per 1 000; in Guatemala and Haiti they are probably nearer 50, while in Bolivia and Panama they might be nearer 40. On the other hand, the birth rate may now be about 35-37 in Chile, 30-32 in Cuba,

[4] Rising birth rates were recorded in several countries during 1945 to 1955. As the registration of vital statistics was becoming more accurate at the time, the rise may simply reflect the increasing completeness of statistical coverage. In some instances (e.g. that of Venezuela), it may have been partly the result of a real increase in fertility associated with the eradication of malaria and consequent improvement in the people's health. It is admitted that a slight or temporary rise in the birth rate may have been due to this improvement, but the evidence is inconclusive.

Table 3

BIRTH RATE; DEATH RATE, AND NATURAL INCREMENT, 1953-57

(Per 1 000 inhabitants)

Country	Birth rate		Death rate		Natural increment	
	A	*B*	*A*	*B*	*A*	*B*
Argentina	24.1	24-25	8.5	8-9	15.6	15-16
Bolivia	31.0	41-45	11.0	18-25	20.0	18-25
Brazil	43.0[a]	42-45	20.6[a]	16-19	21.4[a]	24-28
Colombia	40.4	44-45	13.0	15-17	27-4	28-29
Chile	34.4	35-37	12.6	13-14	21.8	22-24
Ecuador	46.0	44-48	15.3	15-17	30.7	28-32
Paraguay	46.6[b]	45-50	10.6[b]	12-18	36.0[b]	30-35
Peru	36.9	42-48	13.0	15-22	23.1	22-30
Uruguay	19.0[c]	18-20	7.4[c]	7-8	11.6[c]	10-13
Venezuela	46.5	44-47	10.1	12-15	36.4	25-32
Total	*38.3*	*39-41*	*15.7*	*14-17*	*22.6*	*23-26*
Costa Rica	48.0	44-48	10.5	10-15	37.5	30-36
Cuba	25.1[d]	30-32	5.8[e]	10-11	...	20-21
El Salvador	48.0	44-48	14.1	14-18	33.9	28-32
Guatemala	49.9	46-52	20.5	18-25	29.4	25-30
Haiti	...	45-55	...	25-35	...	15-25
Honduras	42.2	44-48	11.0	15-20	31.2	25-32
Mexico	46.4	45-47	13.6	14-17	32.8	29-32
Nicaragua	42.6	45-50	9.2	14-18	33.4	28-35
Panama	39.2	38-42	9.3	9-12	29.9	28-31
Dominican Republic	41.1	45-50	8.8	15-20	32.3	25-32
Total	*43.4*[f]	*43-46*	*12.5*[f]	*15-18*	*30.9*[f]	*26-30*
Grand total	*39.7*[f]	*40-43*	*14.8*[f]	*15-17*	*24.9*[f]	*25-26*

Source: *Economic Bulletin for Latin America*, "Statistical Supplements for 1960", Vol. V, table 3.
A = Recorded rate or official estimate.
B = ECLA estimate.
[a] Estimates for 1940-50.
[b] Estimates for 1950.
[c] 1953-54.
[d] 1952.
[e] 1956.
[f] Excluding Haiti.

24-25 in Argentina and as low as 18-20 in Uruaguay. In 1940-50, birth rates of 38.5, 38 and 25 have been estimated for the Brazilian States of Rio Grande do Sul, São Paulo, and the Federal District.[5] Despite the lack of precise data, a death rate as high as 30 per 1 000 may still conceivably exist in the case of Haiti though, no doubt, progress has been made in that country. In Bolivia, Guatemala and, possibly, Peru, average death rates may still exceed 20 per 1 000. In most of the countries, death rates now fluctuate between 12 and 20 per 1 000, while the lowest rates are those of Panama (9-12), Cuba (10-11), Argentina (8-9) and Uruguay (7-8). With the given age structures, such diverse death rates correspond to expectations of life at birth varying between 40 and 65 years.[6] At this level of mortality conditions, the existence of modern sanitary methods can bring about an unusually rapid decline in the death rate. With a birth rate of 45 per 1 000, a population increases at a rate of nearly 3 per cent when life expectancy reaches 50 years and of 3.5 per cent when it attains 60 years.

[5] A. V. de Carvalho, *A População Brasileira (Estudo e Interpretação, Conselho Nacional de Estatística,* 1960.

[6] For the several federal divisions of Brazil, expectations of life at birth in 1940-50 were estimated by Carvalho as ranging from 36 to 53 years, *op. cit.* With probable sanitary progress, the federal divisions of Brazil may now comprise about the same range of mortality conditions as is to be found among the several Latin American republics.

4. Prospects

Efficient methods for the control and eradication of fatal diseases have recently become available and have been applied with conspicuous success. Death rates have been sharply reduced in poor countries which have only small staffs of fully qualified doctors and limited hospital equipment. The desire to avoid disease and postpone a premature death is universal and irresistible, especially since it is now common knowledge that practical measures to that effect can be taken at comparatively small cost. Even in poor countries, an expectation of life of nearly 60 years has been reached, a result which, sooner or later, will prevail in every part of Latin America. Meanwhile, the rate of progress might be retarded at certain times and in certain places by difficulties of communication, unsanitary living habits, an unpropitious climate, superstition, and other impediments to effective administration. On the other hand, mortality is already very low in Argentina and Uruguay, where some of the more expensive medical services have been available on an extensive scale for some time past.

There is more room for speculation concerning possible future changes in birth rates, despite the seemingly almost constant rates observed so far in most of the Latin American countries. A distinction must be made, however, be-

tween factors which can induce radical change and those which result in relatively small modifications only.

The comparatively low birth rates of Argentina and Uruguay are the result of a profound change of attitude in regard to family formation, similar to the change that has occurred in all the technologically advanced regions of the world. For the past 25 years or so, the Argentinian birth rate has fluctuated slightly from 23 to 25 per 1 000. Very much the same situation has prevailed, since the end of the Second World War, in areas such as the United States, Canada, the Soviet Union, Australia and New Zealand. There is no need to look for any significant change in the near future, as it may be assumed that the transformation of the respective social attitudes has run its full course. A minor reduction in the rates of population growth in Argentina and Uruguay may result from the declining effect of immigration and the change in age composition.

A cultural tradition of the European type, commercialization, urbanization, industrialization, a high degree of literacy, and the prevalence of industrial and white-collar employments are some of the factors underlying the comparatively low birth rates of Argentina and Uruguay. To a lesser but perhaps increasing extent, most of these conditions also exist in other Latin American countries and there is at least a possibility that, sooner or later, they may produce similar effects on the personal and social attitudes affecting family formation. The precise combination of the conditions which produce this effect cannot be determined and, in view of the almost complete absence of data, forecasts of possible decreases of fertility in some of these countries cannot be made at this moment.

In Chile, Cuba and southern Brazil, the conditions which are apt to lead to a marked decrease in the birth rate have perhaps already had an effect, as indicated by birth rates which are below 40, although still above 30 per 1 000. In Puerto Rico as well, birth rates declined recently during a period of rather extensive social and economic changes. But it is not clear, at the present time, whether the apparently "incipient" fertility decline in these cases is continuous. The more likely development is a further decline in the birth rates of Chile, Cuba and southern Brazil, but as yet there are no clear indications of a continuation in the downward trend.

There is no evidence in any of the areas where the current birth rate is higher than 40 per 1 000 that marked changes are imminent. On the other hand, minor changes may take place without any significant modification of the attitudes towards family formation in the given environments. In this connexion, both the decrease in mortality and progressive urbanization may have some effect.

A minor change in the age composition of a population derives from the reduction of specific death risks. Chances of survival are thus increased in early childhood and at advanced ages in particular, with the result that a slight reduction takes place in the relative numbers of adults of early to middle age in the population, i.e., the groups capable of procreation. With respect to the total population of all ages, the birth rate is then slightly lower.[7]

In every Latin American country birth rates are markedly lower in urban than in rural areas, evidently because of the differences in living conditions between the two types of environment. As the proportion of the population that lives in urban areas is increasing rapidly, the maintenance of the same birth rates in urban and rural areas pushes down the average birth rate for the region as a whole.[8]

Decreases in the birth rate resulting from these circumstances will in no case be rapid. So long as there is room for a sizable reduction in the death rate, the possible small reduction in the birth rate will be far from sufficient to offset the tendency towards accelerated population growth. Eventually, however, death rates will be so low that, despite continued improvements in health conditions, they can no longer be reduced to any great extent. As urbanization continues to progress the decrease in the birth rate may then begin to compensate for possible additional decreases in the death rate. When this occurs, the population continues to increase rapidly but no longer at an ever-quickening pace. No significant reduction will take place in the rate of population growth without profound changes in social and individual attitudes, such as those which have occurred in Argentina and Uruguay.

These are some of the considerations which governed the calculation of population projections and their selection by the secretariat.[9] In addition, it was also thought that immigration would probably continue in the case of Argentina and Venezuela whereas there might be persistent emigration from Bolivia and Paraguay. New census data, when available, may partly confirm these estimates and will, in any event, provide the criteria for their revision and improvement. It is unlikely that current trends and expectations for the near future have been severely misjudged.

In short, then, the Latin American population is now growing at an annual rate of 2.5 to 2.6 per cent. This average will probably be maintained for some time but will no longer be exceeded to any great extent. In several countries annual rates of 3 per cent have been, and will be, significantly exceeded. In some countries, the already reduced birth rates will result in future rates of increase that are nearer 2 per cent or, in the cases of Argentina and Uruguay, even lower. High mortality or emigration may still result in less-than-average rates of growth in Bolivia, Haiti and Paraguay. On the whole, little future change in the average rate of growth of the Latin American population is foreseen.

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[7] As calculated in theoretical population models, decreases in mortality can produce the following reductions in the birth rate while fertility remains constant at a level where, on an average, three daughters are born to each woman in the course of her reproductive life: when expectation of life in only 30 years, the birth rate is 47.7 per 1 000; when expectation of life rises to 40, 50 and 60 years, the birth rate falls to 46.0, 44.9 and 43.8 per 1 000. Meanwhile, the death rate falls far more rapidly, from 33.7 per 1 000 when expectation of life is 30 years to 23.3, 15.8 and 9.6 per 1 000. (See *The future growth of world population, op. cit.*).

[8] The following relationship, for example, might be considered. In a population with high fertility, the rural birth rate might typically be of the order of 50 per 1 000, while the urban birth rate, even more typically, might be about 40 per 1 000. So long as only 30 per cent of the population is urban, the average birth rate for the country is 47 per 1 000. When half the population has become urban, the national birth rate may average 45 per 1 000. Actually, of course, the relationship is not so precise. Since, in Latin America, urbanization usually involves the movement of large numbers of young women from rural to urban places, the corresponding decrease in the national birth rate may be somewhat greater. Furthermore, fertility is generally lower in large cities than in small towns. The increase in the size of towns and cities may thus contribute to reducing a country's average birth rate.

[9] See *Statistical Supplement, op. cit.*

5. Problems relating to population size

Owing to its rapid growth, Latin America's population has doubled in the past 32 years, from 1928 to 1960. It will probably double again within the next 25 to 30 years. Each time, the new generation is twice that of the previous one. As growth requires certain changes in structure, rapid adaptations to increased size are necessary within each generation.

(a) *Latin America and other regions of the world*

Superficially, it might safely be asserted that sheer size of population is not the outstanding problem of the Latin American countries. This appears to be the case, at least from a comparison of populations among groups of world regions with land areas that are similar in size.

More precisely, these six areas of roughly equal land surface do not possess an equal variety of natural resources or of suitable land for different uses. According to summary statistics compiled by FAO, the comparative position of Latin America in the latter respect is not unfavourable.[10] Only 29 per cent of the entire land surface is waste land in Latin America as against 59 per cent in the Near East, 46 per cent in the Far East, 45 per cent in North America, and 43 per cent in Africa. Apart from this wasteland, two-thirds of the land area in Latin America are forested — more than in any other major world region — and one quarter is dedicated to permanent meadow and pastureland. It follows that only 7 per cent of the currently productive land is under crops, and even within that percentage rather extensive systems of crop rotation and shifting agriculture are still widely practised. Viewed in this perspective, Latin America's land resources seem abundant, even though the eventual productivity of land that is potentially suitable for more intensive use is still a matter of speculation and depends in addition on the development of appropriate techniques.

It has often been pointed out that the comparative abundance of extensive land resources has facilitated rapid economic, development in both the United States and the Soviet Union. In this respect, Latin America can scarcely be considered at a disadvantage as compared, for instance, with Europe, although the particular types of resources may be differently distributed in each area. If sheer weight of numbers relative to land resources is a severe disadvantage, the resulting problem cannot conceivably be as acute in Latin America as it is in Asia.

[10] FAO, *Production Yearbook, 1959*. The statistics are, of course, not fully comparable for a variety of reasons.

(b) *Differences among the Latin American countries*

It should be recognized, on the other hand, that the distribution of the population is highly uneven among the Latin American countries as a whole, as well as within each country. The figures in table 6 show population densities in 1958 ranging from 3 persons per square kilometre in Bolivia to 129 in Haiti. Both the low and the high densities give rise to special problems.

The low average density in some countries is evidence that settlement is exceedingly scant over vast areas although other parts of the same countries are fairly thickly populated. *Ceteris paribus*, where population density is low, the overhead charges involved in expanding transport and communications, markets, or the educational network are so high as to discourage economic development. Under certain conditions, a larger population might be accommodated, with less relative cost, in an economy affording higher levels of living. Considerable further increases in the population might then be very desirable, especially if the economic and social structures were such as to permit a more advantageous redistribution of the population in relation to a rational exploitation of the natural resources available. High, or considerable, population densities prevail in the Central American and Caribbean countries. But even the density in Haiti (129 persons per square kilometre) is greatly surpassed by that in Puerto Rico (261) and by still higher densities in some of the tropical island and river delta areas of Asia. Problems of population pressure are, nevertheless, felt in less densely inhabited areas, especially if the given density has been attained rapidly and recently. Under these conditions, there has been too little time and opportunity to accommodate social and economic organization and techniques to the requirements of a more efficient utilization of resources. Again, the problem is not directly determined by numbers of population, but rather by the difficulties encountered in attaining the needed levels of efficiency. Meanwhile, the scarcity of resources may be keenly felt, and any amelioration of the situation obviated by further increases in the population.

While it is true that, viewed from a world-wide per-

Table 4

POPULATION AND AVERAGE POPULATION DENSITY OF GROUPS OF WORLD REGIONS WITH LAND AREAS COMPARABLE TO THAT OF LATIN AMERICA, 1958

Regions	*Land area (thousands of km²)*	*Population (millions)*	*Persons per square kilometre*
Latin America[a]	20 537	197	9.6
Northern America[b]	21 497	193	9.0
Soviet Union	22 403	206	9.2
Tropical and Southern Africa[c]	19 961	155	7.8
Europe and Mediterranean[d]	20 872	568	27.2
Southern and Eastern Asia[e]	21 535	1 519	70.5

[a] America South of the United States.
[b] America North of Mexico.
[c] Africa South of the Sahara.
[d] Europe West of the Soviet Union, Africa North of the Sahara and Asia West of Pakistan.
[e] Asia South of the Soviet Union and East of Iran.

Table 5

LAND AREA, POPULATION, AND POPULATION DENSITY OF THE TWENTY LATIN AMERICAN REPUBLICS, 1958

Country	Land area (square kilometres)	Population (thousands)	Persons per square kilometre
Brazil	8 513 844	62 725	7.4
Argentina	2 778 412	20 248	7.3
Mexico	1 969 269	32 518	16.5
Peru	1 285 215	10 213	7.9
Colombia	1 138 355	13 968	12.3
Bolivia	1 098 581	3 551	3.2
Venezuela	912 050	6 499	7.1
Chile	741 767	7 298	9.8
Paraguay	406 752	1 570	3.9
Ecuador	270 670	4 048	15.0
Uruguay	186 926	2 700	14.4
Nicaragua	148 000	1 378	9.3
Cuba	114 524	6 541	57.1
Honduras	112 088	1 828	16.3
Guatemala	108 889	3 546	32.6
Panama	74 470	995	13.4
Costa Rica	50 900	1 076	21.1
Dominican Republic	48 734	2 679	55.0
Haiti	27 750	3 583	129.1
El Salvador	20 000	2 276	113.8

pective, Latin America still seems favoured by a comparatively low average density of settlement, it has problems of population pressure and population shortage because of unequal geographic distribution. It is clear that these problems cannot easily be dismissed if a specific and detailed examination is made of the possibilities and obstacles in the social and economic development of the different countries. With the prospect of further increases in the population, some of these problems will tend to be mitigated while others will be intensified.

c) *Geographic distribution within countries*

Within many of the countries, the geographic distribution of the habitat is even more strikingly uneven. Comparisons to this latter effect have been made in a previous United Nations publication,[11] use being made of data and estimates for 1950, and projections for 1980, in respect of the major administrative divisions of South American countries.[12] The results may be seen in two maps reproduced here.

In 1950, a belt of intermediate and, in places, relatively high population densities can be seen to have surrounded a vast interior region in which human settlement was exceedingly scant. The southern extremity of the continent, likewise, was very thinly inhabited. As a result, almost every South American country comprised both areas of fairly dense population and huge tracts that were all but uninhabited.

By 1980, contiguous solid zones appear in the outer ring of relatively dense settlement, comprising long belts with densities of 25 or more inhabitants along both the Atlantic and the Pacific littoral; in 1950, areas of such density appeared in patches only. Nevertheless, the trends calculated suggest little reduction by 1980 in the vast areas of the interior and the extreme South where settlement is most sparse.

In terms of the territorial units selected for the comparison, the following observations can be made. One half of the respective national population is found within 1/8 of the land area of Colombia, 1/11 of the area of Brazil, 1/20 of the area of Chile, and 1/40 of the area of Argentina and Paraguay; the other half of each national population is widely scattered over the remainder of the national territories. When the areas with lowest population densities are selected, it can be noted that one half of the national territory has only 1/11 of the population in Argentina, only 1/20 in Brazil and Chile, 1/30 in Paraguay and Venezuela, and barely 1/70 in Colombia and Ecuador.

> "These great inequalitites in the geographic distribution of the population of South American countries are only in part the result of differences in topography, climate and soil. It is, of course, evident that agricultural settlement is greatly favoured by the natural advantages of some areas and severely discouraged by the natural obstacles of other areas. Nevertheless, to an important extent the present distribution of the population is also the result of historical accident and of transportation difficulties hitherto found insuperable."[13]

In the same publication, the number of persons living in areas of a given average population density in 1950, as well as the number expected to inhabit areas with an equal average density in 1980, were calculated. The areas are not the same at the two dates since a contraction occurs in the areas of thinnest settlement, an expansion in relatively densely-settled areas, and various shifts in areas of intermediate population density. As shown in the results below, areas of very sparse, sparse and moderate population density will contain approximately equal numbers of inhabitants in both 1950 and 1980, whereas the population of areas with a more appreciable density (25 or more persons per square kilometre) will increase more than threefold. In fact, virtually the entire population increment of South America, i.e., more than 100 million, will be reflected in the growth and expansion of areas of the latter type. The population of areas with a significant density, hitherto a minority, will become a decided majority. Very nearly the same results were also obtained in the calculation for each individual country.

As a check on the plausibility of this calculation, census data for Mexico, including the provisional results of the 1960 census which are now available, may be considered. It can be noted that, from 1930 to 1960, the population of Mexico increased by 18 million (i.e., it more than doubled, as might the population of South America between 1950 and 1980). At the same time, the population of the federal States of Mexico having, at each given date, average densities of at least 25 increased by more than 14 million, and, in fact, almost quadrupled (see table 7).

These calculations for South America, roughly confirmed by observations for Mexico, are of great significance.

[11] *The Population of South America, 1950-1980* (ST/SOA/ries A/21, New York, 1955), United Nations publication, Sales .: 55.XIII.4.

[12] Provinces and Territories of Argentina; Departments of Boia; States and Territories of Brazil; Provinces of Chile; Dertments, *Intendencias* and *Comisarias* of Colombia; Provinces d Territories of Ecuador; Departments of Paraguay; Departents of Peru; Departments of Uruguay; States and Territories Venezuela; Counties of British Guiana. In addition, capitals ming a separate federal entity, and a selected group of districts *artidos)* with high population density in the Buenos Aires-sario area of Argentina. Territorial divisions are those of 1950.

[13] *The Population of South America. 1950-1980, op. cit.*


SOUTH AMERICA
POPULATION DENSITY IN MAJOR ADMINISTRATIVE DIVISIONS OF THE COUNTRIES 1950
More than 25 persons per square kilometre
5 to 25 persons per square kilometre
1 to 5 persons per square kilometre
Less than 1 person per square kilometre
SINUSOIDAL PROJECTION
0 200 400 600 800 1000
MILES
0 200 400 600 800 1000
KILOMETRES
The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations
80
70
60°
50°
40
10°
0°
20°
30°
40°
50°
100°
90°
30
20°


SOUTH AMERICA
HYPOTHETICAL POPULATION DENSITY IN MAJOR ADMINISTRATIVE DIVISIONS OF THE COUNTRIES 1980
More than 25 persons per square kilometre
5 to 25 persons per square kilometre
1 to 5 persons per square kilometre
Less than 1 person per square kilometre
SINUSOIDAL PROJECTION
0 200 400 600 800 1000
MILES
0 200 400 600 800 1000
KILOMETRES
The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.
80° 70° 60° 50° 40°
10° 0° 10° 20° 30° 40° 50°
100° 90° 80° 70° 60° 50° 40° 30° 20°

Table 6

POPULATION INHABITING MAJOR ADMINISTRATIVE DIVISIONS OF SOUTH AMERICAN COUNTRIES WITH SPECIFIED POPULATION DENSITIES, 1950 AND 1980

(Millions)

Density per sq. kilometre	*1950*	*1980*
Total (all densities)	*110.3*	*222.6*
Under 1	4.2	5.0
1-5	10.3	10.2
5-25	53.3	57.7
25 and over	42.5	149.7

The emergence of large contiguous areas of appreciable or high population density favours economic development of a modern type. Transport difficulties can be more easily overcome. A large and diversified labour force can be more readily assembled in centres specializing in better integrated productive processes. Local markets can be organized on a larger scale. The cost of education and public health services can be distributed more equitably.

Opportunities for more intensive, co-ordinated and efficient economic organization are thus coming into being which have not hitherto existed, in the same areas, to a comparable degree. The forms of economic and social organization, naturally, should also be adapted to the opportunities for greater integration in production, distribution, social services and cultural advancement. Earlier forms of organization, which may have served well in an extensive type of economy where the human factor was relatively scarce, must be superseded by patterns more appropriate to changed and changing conditions.

In this context, efforts made for the increased use of the remaining tracts of scarcely inhabited lands can acquire added significance. Urbanization, industrialization and intensified uses of certain lands may, in a growing and diversifying economy, be profitably supplemented with extensive uses derived from other lands.

Land settlement plans have long been entertained by the Governments of countries having extensive vacant areas available, and projects are now being carried out on a considerable scale. Still, the number of settlers involved remains small when it is compared, for example, with the large increases in the population of already settled lands. Nor can the process be expected to become as dynamic as the opening up of the inner frontiers in North America during the last century. Migrant farmers, determined to live under pioneer conditions, are no longer so numerous as they were then, and this is a vital consideration.[14] In South America, obstacles to internal transportation are far more severe. Futhermore, experience in remunerative commercial farming methods, suited to tropical conditions of soil and climate, is still in its infancy. These adverse circumstances notwithstanding, additional benefits, especially through a resulting diversification of products, may nevertheless result from the extended use of newly settled areas, especially if this supplements the more important developments in the sections of the country where the majority of the population is situated and where density of settlement, already appreciable, is increasing further.

Table 7

POPULATION INHABITING FEDERAL ENTITIES OF MEXICO WITH SPECIFIED POPULATION DENSITIES, 1930, 1940, 1950 AND 1960

(Millions)

Density	*1930*	*1940*	*1950*	*1960*
Total (all densities)	*16.6*	*19.7*	*25.8*	*34.6*
Under 5	2.2	2.3	2.5	1.1
5-25	9.0	10.8	10.8	13.7
25 and over	5.4	6.6	12.5	19.8

The contiguous zones of relatively dense settlement, as has been shown, are themselves expanding as a mere function of local natural increases in the population. Meanwhile, a process of urbanization is under way in those same areas and the implications of this for economic and social development prospects merit the closest study.

6. The problem of a high rate of population growth

If the rate of population growth is a major problem, the world wide comparison shows that the situation in Latin America, in this respect, is rather serious.

Viewed in the abstract, the economic problem of population growth appears in the following terms. As an increased generation of children replaces that of its parents, the available durable goods, and the factors of production to secure a flow of products for current consumption, must be increased proportionately to ensure at least the maintenance of a given level of living. These so-called "demographic" investments, i.e., those which merely prevent a deterioration in living conditions, must be met by increased savings.[15] Consequently, particularly where incomes are low, little extra savings can be effected to provide for an increased efficiency of production and, thereby, a rise in the level of living. Economists often express the needed "demographic" investments — i.e., those

[14] "An isolated plantation in the midst of empty country might fail where millions of people on many plantations might succeed." P. James, *Latin America* (revised edition), New York, 1950, p. 510.

[15] The savings in question are "net savings", deduction being made for the portion of savings necessary to offset depreciation of existing capital.

Table 8

POPULATION, 1950 AND 1958 AND RATE OF POPULATION GROWTH, 1950-1958, IN MAJOR REGIONS OF THE WORLD

Region	*Population (millions)*		*Average annual increase 1950-1958 (percentage)*
	1950	*1958*	
Latin America[a]	163	197	2.4
Africa	198	231	1.9
Asia[b]	1 376	1 591	1.8
Northern America[c]	168	193	1.7
Soviet Union	181	206	1.6
Europe[b]	395	420	0.7

[a] America South of the United States.
[b] Not including any part of the Soviet Union.
[c] America North of Mexico.

needed merely to offset the economic effect of population growth — by the formula

$$r = \frac{b}{a}$$

where r is the rate of population growth (per cent per year), a is an estimated or assumed capital-output ratio, and b is the percentage of annual national income which must be saved.

In Latin America, typical rates of population growth are between 2 and 3 per cent per year while capital-output ratios may be variously estimated in the order of 2 or 3. According to the formula, then, between 4 and 6 per cent of national income will have to be saved merely to maintain the level of living if population grows at 2 per cent per year, and between 6 and 9 per cent if the growth is 3 per cent.

Greater savings than these are required to effect improvements. The formula in which this further relationship can be quantitatively examined is

$$k = [-(1+y)\ (1+p) - 1]\ R = [y + p + yp]\ R,$$

where k is the annual capital requirement in percentage of national income; y is the desired rate of increase of *per caput* income; p is the rate of population growth; and R is the incremental capital-output ratio.[16]

For simplicity, let us take 2.5 per cent as the rate of population growth, actually observed as the Latin American average. The capital-output ratio then becomes a determining factor either as regards savings needed to effect a given rate of growth in national *per caput* product, or as regards the rate of growth in *per caput* product attainable with a given rate of savings. What actually is the average capital-output ratio, under present Latin American conditions, has not yet been unequivocally determined. As a plausible assumption, let us suppose that it equals 2.5,[17] in which case 6.25 per cent of national income will have to be saved — deduction made for capital depreciation — in order merely to maintain the given level of average *per caput* income. With this assumption the following relationship then obtains for population growth at 2.5 per cent and a capital-output ratio of 2.5:

Net savings required (per cent of national income)	*Increase in* per caput *income (per cent per year)*	*Increase in total national income (per cent per year)*
6.25	0	2.5
10	1.5	4
15	3.5	6
20	5.5	8

Since the capital-output ratio is unlikely to change much within a short time, considerable savings and an appreciable rate of growth in total national income are necessary to prevent a deterioration of *per caput* income in the face of population growth at the given rate. An increase in savings, however, can bring about significant changes. According to the above, net savings at 10 per cent of national income can result in a doubling of total income in 18 years, consistent with a doubling in *per caput* income in 47 years; savings at 20 per cent of national income will result in a doubling of national income in 12 years, consistent with a doubling in *per caput* income in 20 years.

While domestic savings are not the only factor determining economic growth, their role can be decisive. However, given present levels of income, the pressures for a rising standard of living, and the rate of population growth, how high a rate of savings can be obtained?

The calculation at this level of abstraction appears simple, but actually many factors intervene. Incomes and propensities in their disposal are variously distributed, local resources are of diverse kinds, and details of economic strategy, in relation to international conditions and internal social pressures, will have to be arranged in greatly varying ways. The terms of international trade, external loans and interest payments, the substitution of imports, etc., further blur this picture. Even then, among the many factors affecting the capacity to save, the rate of growth of the population and the concomitant age composition can play a large part. In the rapidly growing populations of Latin America, the ratio of children to adults is high and will remain so unless or until population growth is slowed down *via* a significant reduction of the birth rate. Under these specific conditions, the particular circumstances of each situation have to be kept in full view.

Detailed illustrations of the economic effects of population growth have been provided in a study by Coale and Hoover.[18] In this study, alternative population projections were made assuming declines in mortality and either a maintenance of the high level of fertility or, alternatively, sharp declines in fertility. The possible development of the several economic sectors in relation to each of the alternative population trends was then calculated. At the end of 30 years, the population will, of course, be larger if fertility remains high than if it decreases. Nevertheless, this larger population, according to the calculated economic prospects, would then have a smaller total aggregate income than the smaller population, calculated on the alternative assumption. The difference in income per head of the population would accordingly be even greater. How does this happen?

Decreases in fertility reduce the proportion of children while the number of adults remains unaffected for a period of 15 or 20 years. An equal potential labour force can then divert an increased proportion of the product to productive rather than the strictly "demographic" investments with cumulative effects on the economy. So far as the economic and demographic argument is concerned, a high rate of population growth constitutes a definite brake on the rate of economic growth and, more particularly, on the rise in personal and family levels of living.

[16] ECAFE/28, 28 February 1958, "Demographic Aspects and some related economic problems in the ECAFE region", p. 116. For simplicity, *yp* can be omitted from the formula; the quantity is insignificant for practical purposes when y and p are both small. The capital output ratio itself is not a significant concept. It depends on the gestation period, which varies according to the type of investment, and the utilization of the equipment."

[17] This assumption is made merely because it is consistent with certain available approximate estimates. Gross savings, on the Latin American average, are of the order of 15-20 per cent of national product. Net savings, accordingly, may be of the order of 10-15 per cent or, as a mid-point of the estimated range, 12.5 per cent. During certain recent years, an average rate of growth in gross national product near 5 per cent has been observed. With the formula, presently discussed, a net savings rate of 12.5 per cent, a growth in gross national product by an annual 5 per cent, and population growth at an annual 2.5 per cent, are mutually consistent when the capital-output ratio equals 2.5.

[18] A. Coale and E. Hoover, *Population Growth and Economic Development in Low Income Countries* (Princeton University Press, Princeton, U.S.A., 1959). The calculations were carried out with data for India and for Mexico, but it was concluded that the findings are relevant under a variety of conditions.

This conclusion is of great force and almost inescapable when economic and demographic variables alone are included in the joint calculation. But whether this actually happens in practice does not depend on economic and demographic forces alone. It depends, in part at least, on a concurrent change in individual and social attitudes as they affect production, consumption, savings and investments and on the existence of adequate economic machinery that will encourage savings and channel them into investments which enhance the efficiency of production.

The attainment of goods, which would motivate the requisite economic behaviour, is not the precise substitute for traditional social values associated with the raising of larger families. It is then uncertain whether that transformation of attitudes, which causes the hypothetical decline in birth rates, results precisely in those changed propensities to save on which depend the calculated economic gains. Children might, for example, be compensated for by an increased scale of current personal consumption, rather than by the calculated release of savings. In fact, the problem is also one of motivations and cannot be solved in economic and demographic terms alone. If economic motivations predominate and the stimulus for added savings is keenly felt, a decline in sizes of families, allowing for the desired savings, might sometimes result. It is not the decrease in birth rates, but rather the attitudes which provoke it, that are decisive.

Of course, whatever the speed of population growth and the attitudes that support it, economic and social policy will have to face the consequences. An effort that might be sufficient where population growth is slight will be highly inadequate where population grows rapidly.

II. THE PHENOMENON OF URBANIZATION

1. Nature of phenomenon

There is no generally accepted criterion for distinguishing urban from rural localities. Forms of settlement and types of activity vary so that, in some instances, relatively small population nuclei exhibit more typically "urban" features than do much larger population clusters in other instances. In many parts of Latin America, for example, the rural habitat is widely dispersed, while villages of considerable size may often be found in the Andean highlands and some parts of Mexico and Guatemala. However, regardless of the criterion adopted, the world-wide upsurge in urban populations is one of the most outstanding revolutions of the modern epoch.

Estimates of the world's urban population, covering a long period, have been assembled by Davis and Hertz.[19] Some figures, reproduced below, are very instructive. The world's total population has been growing at an ever faster rate, with increments per half-century equal to 30 per cent in 1800-1850, nearly 40 per cent in 1850-1900, and nearly 50 per cent in 1900-1950. The growth in urban population has accelerated even more significantly. Selecting, for instance, the 20 000 limit as the criterion for urban areas, one finds that the 1850 total is 2.3 times that of 1800, the 1900 figure 2.9 times that of 1850, and the 1950 urban population 3.4 times that of 1900.

A different observation is made for the rural population, if that is equated with the population of localities of less than 20 000 inhabitants. By subtraction from the above figures, this "rural" population would have grown from 884 million in 1800 to 1 121 million in 1850, 1 460 million in 1900, and 1 898 million in 1950. The increases, in successive half-centuries are of 27, 30 and 30 per cent respectively. If a lower size limit of 5 000 inhabitants is adopted, the growth in rural population is seen to have been 25, 27 and 21 per cent, respectively. Great precision cannot be attributed to this calculation, but the striking fact remains that growth in the world's rural population has changed little in the course of time despite marked acceleration in the growth of the world's total population.

The phenomenon is caused by many and varied factors which can be summarized in three categories, namely: (*a*) progressive change in the character of given localities, e.g., where a growing village attains urban status; (*b*) "pull" factors owing to the attraction exerted by urban areas which induces rural inhabitants to migrate to towns; and (*c*) "push" factors resulting from limitations in the rural environment which compel the rural migrants to move into towns.[20] Under changing conditions, the combination of these factors may vary.

[19] See Kingsley Davis and Hilda Hertz, *Patterns of World Urbanization,* quoted in UNESCO, *Urbanization in Asia and the Far East,* Proceedings of the Joint UN/UNESCO Seminar, Bangkok, 8-18 August 1956, p. 56.

[20] In a perfectly fluid society, the "push" and "pull" factors become merged into differential advantages (or disadvantages) of the two respective environments, e.g., the difference between

Table 9

WORLD URBAN POPULATION COMPARED TO WORLD TOTAL POPULATION, 1800-1950

Year	*World population (millions)*	*5 000 and over*		*20 000 and over*		*100 000 and over*	
		Population (millions)	*Per cent of world population*	*Population (millions)*	*Per cent of world population*	*Population (millions)*	*Per cent of world population*
1800	906	27.2	3.0	21.7	2.4	15.6	1.7
1850	1 171	74.9	6.4	50.4	4.3	27.5	2.3
1900	1 608	218.7	13.6	147.9	9.2	88.6	5.5
1950	2 400	716.7	29.8	502.2	20.9	313.7	13.1

Source: K. Davis and H. Hertz, *Patterns of world urbanization, op. cit.*

The observations presented above suggest that, on the world-wide scene and over the long period, "push" factors may have predominated over "pull" factors. The rural environment is characterized by inherent rigidity and accordingly is more likely to absorb added population at constant rather than at accelerating rates; the general acceleration of population growth then expresses itself in the ever more rapid growth of cities. True, the opposite interpretation is not excluded and it may well be that, over the past century and a half, the attraction of cities has been increasing; the resulting nearly constant growth of rural population may have been no more than accidental.

The question whether "push" or "pull" factors predominate in rural-urban movements cannot be resolved in these pages. But a clear understanding of the activating forces and motives is increasingly needed because of the large momentum which the movement has already acquired and because the implications for policies of economic and social development may sometimes be decisive.

2. Urbanization in Latin America

In a recent study of urbanization trends in Latin America,[21] the limit of 20 000 was selected to distinguish urban and rural populations. According to this rather high limit, 25 per cent of Latin America's population was "urban" in 1950. This percentage varied considerably from country to country, according to recent censuses. The highest percentages of population in localities with 20 000 or more inhabitants were recorded in Argentina in 1947 (48), Chile in 1952 (43), Cuba 1953 (36) and Venezuela in 1950 (31); the percentage estimated for Uruguay in 1950 was 36. Low percentages were registered in 1950 censuses in the following instances: Haiti (5), Honduras (7), the Dominican Republic and Guatemala (11 each), El Salvador (13), and Nicaragua and Paraguay (15 each); in the 1940 census of Peru, 14 per cent of the population was found in localities of 20 000 and over.

Varying definitions are employed in Latin American population censuses to distinguish urban from rural populations. On the whole, a rather small size limit, such as 1 500, 2 000 or 2 500 constitutes the usual distinction as between the two categories of localities. In many countries, the administrative status or other characteristics of the given locality are taken into account. Generally, the census definitions include in the "urban" category a large number of localities whose population is very much less than 20 000.

In the above-quoted source, population trends are examined for the groups of urban places which at the last census (usually 1950) had at least 100 000 or 20 000 to 100 000 inhabitants. When the varying census definitions are taken into account, the population trend of other localities — of less than 20 000 inhabitants in about 1950 — which at each census date were regarded as "urban",

urban and rural wage levels. However, the speed of the movement cannot be thus accounted for, nor are the transitions between rural and urban activities and residence free from considerable "friction". It is not a fluid, but rather a highly viscous substance, whose movement is being observed.

[21] "Demographic Aspects of Urbanization in Latin America", Population Branch, Bureau of Social Affairs, United Nations. Paper submitted to the Seminar on Urbanization Problems in Latin America, Santiago, 6-18 July 1959 (E/CN.12/URB/18).

Table 10

AVERAGE ANNUAL PER CENT RATES OF INCREASE IN THE POPULATION OF LARGE CITIES, SMALLER CITIES, OTHER "URBAN" LOCALITIES, AND THE RURAL POPULATION

Country	Intercensal period	*Average annual rate of increase in the population of localities having the following criteria*			
		100 000 or more inhabitants at last census	*20 000 to 100 000 inhabitants at last census*	*Others "urban" according to varying census definitions*	*"Rural" according to varying census-definitions*
Argentina	1895-1914	4.8	3.9	8.1	2.2
	1914-1947	2.5	2.5	0.8	1.4
Bolivia	1900-1950	2.9	2.0	0.4	1.0
Brazil	1940-1950	4.2	4.0	3.4	1.6
Chile	1930-1940	2.4	1.8	2.5	1.0
	1940-1952	2.6	2.4	2.5	0.0
Colombia	1938-1951	5.4	4.9	2.0	1.4
Cuba	1919-1931	3.4	2.5	3.1	2.3
	1931-1943	2.2	1.9	1.9	1.2
Dominican Republic	1920-1935	5.4	4.6	3.2	3.1
	1935-1950	5.8	3.2	3.5	2.0
El Salvador	1930-1950	2.9	1.6	0.4	1.4
Mexico	1940-1950	4.5	3.0	7.0	1.5
Nicaragua	1920-1950	4.7	...	1.1	1.8
Panama	1930-1940	3.8	...	3.9	2.3
	1940-1950	1.3	...	9.8	2.2
Venezuela	1936-1941	4.8	4.5	5.2	1.0
	1941-1950	6.8	7.3	5.8	—0.1

as well as the trend in "rural" population on the basis of the census criteria, may be discerned. Some of the average annual rates of increase in these four distinct population segments are brought together in the table below.

Special circumstances, such as the absence of medium-sized towns or of suburban development, interfere with the dominant pattern in the smaller countries (e.g. Panama). Apart from such exceptions, it is generally apparent that big towns tend to increase faster than small and medium-sized towns and these, in turn, tend to grow faster than the rural communities. There is also some evidence of accelerated growth in urban populations, as against declines in the rate of growth of rural populations. Comparable census data, unfortunately, are not yet available in sufficient amount to measure precisely the extent to which this generalization is warranted. In recent years, increases in the population of cities of the order of 5 per cent a year are characteristic of many countries in Latin America, except in those where there already exists a high degree of urbanization (Argentina, Chile and Cuba). Rural populations, on the other hand, now increase at rates ranging mostly from 0 to 2 per cent per year.

These and other observations were taken into account in preparing the estimates of urban and rural population presented in the 1960 Statistical Supplement of the *Economic Bulletin for Latin America*, Vol. V, reproduced in table 11. But the estimates depend on the assumption of fixed rates of increase in the rural population, estimated as follows: 2.5 per cent per year in Costa Rica; 2.0 per cent in British Guiana, the Dominican Republic, Ecuador, Guatemala, Honduras, Nicaragua and Panama; 1.5 per cent in Bolivia, Brazil, El Salvador, Mexico and Peru; 1.0 per cent in Argentina, Colombia, Cuba, Haiti and the West Indies; 0.5 per cent in Chile, Paraguay and Venezuela; and even less in Uruguay. In so far as possible, the 2 000 population limit was adopted to distinguish between urban and rural populations but, as data are not available in this form for all countries, some of the estimates are not strictly comparable on such a basis, as pointed out in the footnotes. The estimates are not entirely comparable nor very reliable, but they are indicative of the trends implied in the available observations.

If these estimates were reliable, it might be inferred that in the 1950-1960 period the absolute increase of about 33 million in Latin America's urban population — including that of small towns — was twice as great as that of the rural population — about 17 million. A continuation of this trend would make the urban and small-town population exceed the total of rural inhabitants in the course of the 1960's. However, the assumptions on which these estimates depend and the lack of consistent comparability must be borne in mind. It is to be hoped

Table 11

URBAN, RURAL AND TOTAL POPULATION, 1950 AND 1960

(Unofficial mid-year estimates in thousands of persons)

Country	*1950*				*1960*			
	Urban[a]	*Rural*	*Total*	*Urban as percentage of total*	*Urban*[a]	*Rural*	*Total*	*Urban as percentage of total*
Argentina	11 038	6 151	17 189	64	14 203	6 795	20 998	68
Bolivia[b]	1 013	2 006	3 019	34	1 381	2 328	3 709	37
Brazil	16 021	35 955	51 976	31	24 134	41 728	65 862	37
Colombia[b]	4 360	6 974	11 334	38	7 066	7 705	14 771	48
Chile[b]	3 574	2 499	6 073	59	5 007	2 627	7 634	66
Ecuador	885	2 312	3 197	28	1 468	2 819	4 287	34
Paraguay	388	1 009	1 397	28	564	1 060	1 624	35
Peru[b]	2 973	5 548	8 521	35	4 418	6 439	10 857	41
Uruguay[b]	1 893	514	2 407	79	2 246	514	2 760	81
Venezuela	2 430	2 544	4 974	49	4 259	2 674	6 933	61
Total	44 575	65 512	110 087	40	64 746	74 689	139 435	46
Costa Rica	232	569	801	29	415	729	1 144	36
Cuba	2 713	2 795	5 508	49	3 731	3 088	6 819	55
Dominican Republic	458	1 673	2 131	21	806	2 039	2 845	28
El Salvador	517	1 351	1 868	28	829	1 567	2 396	35
Guatemala	674	2 131	2 805	24	1 157	2 598	3 755	30
Haiti	312	2 800	3 112	10	633	3 093	3 726	17
Honduras	247	1 181	1 428	17	492	1 440	1 932	25
Mexico[b]	11 003	14 823	25 826	43	17 423	17 203	34 626	50
Nicaragua	298	762	1 060	28	536	929	1 465	37
Panama	337	460	797	42	491	561	1 052	47
Total	16 791	28 545	45 336	37	26 357	33 403	59 760	44
Total for twenty countries	61 366	94 057	155 423	39	91 103	108 092	199 195	46

SOURCE: *Economic Bulletin for Latin America*, "Statistical Supplement", Vol. V, table 6.

[a] Unless otherwise indicated, "urban population" is defined as that of localities with 2 000 or more inhabitants, the remainder being considered as "rural".

[b] "Urban" population is defined as follows: *Bolivia:* administrative centres of departments, provinces and cantons: *Colombia:* localities with more than 1 500 inhabitants; *Chile:* localities having urban characteristics; *Peru:* administrative centres of departments, provinces and districts, and other localities having urban characteristics; *Uruguay:* localities with urban-type primary schools; *Mexico:* localities with 2 500 inhabitants or over.

Table 12

INHABITANTS OF URBAN AREAS, GROUPED BY SIZE, IN SELECTED COUNTRIES

Country	*Census date*	*Population inhabiting towns and cities with specified number of inhabitants (Thousands of persons)*			
		5 000 to 20 000	*20 000 to 100 000*	*100 000 to 500 000*	*500 000 and over*
Canada	1951	1 440	1 655	1 584	1 698
Netherlands	1947	1 328	1 639	1 162	1 983
Sweden	1950	871	956	576	928
India	1951	32 435	19 359	12 827	10 724
Turkey	1950	1 654	1 315	739	983
Argentina	1947	1 359	1 776	2 924	2 981
Brazil	1950	3 432	3 619	2 041	4 832
Chile	1940	423	667	209	961
Costa Rica	1950	68	...	140	...
Dominican Republic . . .	1950	158	57	182	...
Ecuador.	1950	201	101	469	...
El Salvador	1950	162	79	162	...
Guatemala	1950	156	28	285	...
Haiti	1950	95	24	134	...
Honduras	1950	69	93	...	...
Nicaragua.	1950	68	52	109	...
Panama.	1950	67	...	201	...
Venezuela	1950	555	722	636	...

hat more reliable estimates can be made in the near uture on the basis of new census data.

The continuance of rapid urbanization is already in-icated by the provisional results of the 1960 census of lexico. From 1950 to 1960, the population of the Federal istrict, i.e., Mexico City and its suburbs, increased from 050 000 to 4 829 000, i.e., at an annual rate of 4.7 per ent. The population of the remaining State capitals grew om 2 273 000 to 3 653 000, i.e., at a rate of 4.8 per ent. The rest of the country's population, part of which also urban, increased from 20 468 000 to 26 144 000. hese latter figures are consistent with an increase in ural population at the rate of 1.5 per cent — as esti-mated in the *Economic Bulletin* — if the population of e remaining urban localities increased at 4.7 per cent, e., about the same rate as that noted for Federal District nd the State capitals.

More data from new censuses are still needed to verify hether the estimates made for other countries are as alistic as they seem to be in the case of Mexico.[22]

3. Concentration in large cities

he urban population in several Latin American coun-ies is largely concentrated in one or two large cities. he towns next in size in the same country are usually uch smaller. A comparison is made in table 12 showing e grouping of urban populations according to size of towns, for countries where census data in this respect are somewhat comparable.

In countries like Canada, the Netherlands and Sweden, numbers of persons inhabiting cities of four distinct size groups (5-20 000; 20-100 000; 100-500 000; and 500 000 or more inhabitans) are fairly similar. By comparison, the size class distribution of the urban population in countries like India and Turkey is regressive: inhabitants of small towns are relatively more numerous than those of big cities. The opposite pattern can be noted in Latin American countries, particularly in Argentina and Chile.[23] In Brazil, the combined population of the two largest cities (São Paulo and Rio de Janeiro) is not followed by nearly equal numbers in the next class of cities. In the smaller countries, rather few persons inhabit cities in the 20-100 000 class, and the population of the capital city alone generally exceeds the combined numbers of inhabitants of small towns (5-20 000).

For Latin America as a whole, it may be observed that the phenomenon of urban concentration reproduces itself in modified form. Unfortunately, comparable data for all countries cannot be assembled for the same date. In nearly all countries, towns are listed according to the population living within their administrative limits, and as a result the size of the large agglomerations is usually underestimated.[24] But it is interesting to compare combined urban populations by size class of towns are cities

[22] According to advance releases, provisional results of censuses the Dominican Republic and Venezuela indicate another doubl-g in the national capitals of each of these two countries from 50 to 1960. In the Dominican Republic, 342 000 persons in-bited towns and cities of 10 000 and more inhabitants in 1950, d 700 000 in 1960, an increase at a rate of 7.4 per cent per ar; the population of other localities (1 794 000 in 1950 and 314 000 in 1960) increased at an average rate of 2.6 per cent. pulation estimates for the Dominican Republic presented in this port will have to be revised.

[23] At the 1950 census of Venezuela, the population of Caracas, within the administrative city limits, was returned as 495 000, hence the seemingly regular population distribution appearing in table 13. The urban conglomeration of Caracas then contained 694 000 inhabitants, a criterion which would place the city in the above - 500 000 class, leaving only 141 000 inhabitants in the 100 - 500 000 class.

[24] For example, in 1947 there were 2 981 000 inhabitants within the administrative limits of Buenos Aires, as compared with 4 603 000 in the Greater Buenos Aires agglomeration; in 1952, the municipality of Santiago had 665 000 inhabitants, while the agglomeration of Greater Santiago had 1 348 000.

in the majority of Latin American countries with the corresponding distribution in the United States. (See table 13.) The latter country shows a concentration in agglomerations of two million or more, as compared with smaller numbers of the population in agglomerations having from 500 000 to two million. In Latin America, the concentration in cities having within the administrative limits more than two million and in those having between 200 000 and 500 000 inhabitants, is very great if judged by the populations in towns and cities of less than 200 000, or between 500 000 and two million.[25]

As already noted, the population of large towns tends to grow more rapidly than that of smaller towns. Accordingly, the "top-heaviness" of urban population structures in Latin America, is probably still increasing.[26]

[25] The 1950 population of agglomerations of more than 2 million inhabitants (Buenos Aires, Mexico, Rio de Janeiro and São Paulo) probably totalled about 13 million. The agglomerations of Havana and Santiago then exceeded one million inhabitants each, while those of Lima and Montevideo may then have come close to the million limit (census data for Peru and Uruguay for about 1950 are not available). On the other hand, the agglomeration of Caracas was greater than half a million, although the city, within administrative limits, was smaller; the same may also have been the case with several other cities reported as having less than 500 000 inhabitants in 1950.

[26] Between 1950 and 1960, the population of Mexico City, within the administrative limits, increased only from 2 235 000 to 2 698 000. Meanwhile, the population of the Federal District, outside the city limits, increased from 816 000 to 2 131 000. The agglomeration of Buenos Aires, 4.6 million in 1947, is reported to have attained 5.8 million in 1960, according to an advance release on the recent Argentine census.

4. The possible future trend

(a) *Detailed projections*

Urbanization is proceeding with such momentum that a major alteration of the trend is hardly likely to occur in the foreseeable future. But the detailed process is complex, both demographically and in respect of the economic variables which may further affect it.

From the demographic standpoint, the following factors relate to the shift of population from the rural to the urban sector:

(i) differences in mortality between urban and rural areas;
(ii) differences in fertility between urban and rural areas;
(iii) the volume and incidence, by sex and age, of net migratory transfers from the rural to the urban areas;
(iv) the attainment of urban status by previously rural localities; and
(v) the territorial expansion of urban territory over areas that were previously rural.

The two last-mentioned factors depend on the definitions used to distinguish urban populations. As regards the first three, they both determine, and are partly conditioned by, the age composition of urban and rural populations respectively. Because birth rates are lower in urban areas, and because migratory transfers involve

Table 13

COMBINED NUMBER OF INHABITANTS IN URBAN PLACES, GROUPED BY SIZE, IN A MAJORITY OF LATIN AMERICAN COUNTRIES, AND IN THE UNITED STATES, ACCORDING TO CENSUSES TAKEN IN OR ABOUT 1950

(Thousands)

Size of towns and cities (inhabitants)	*Latin America (within administrative limits)*		*United States*	
	Thirteen Republics[a]	*Eighteen Republics*[b]	*Within administrative limits*	*Agglomerations*
2 000- 5 000 . . .	4 235	...	...	6 490[c]
5 000- 10 000 . . .	3 270	...	...	8 139
10 000- 20 000 . . .	3 211	...	...	11 867[d]
20 000- 50 000 . . .	3 708	...	...	8 808[e]
50 000- 100 000 . . .	2 895	...	...	8 931
100 000- 200 000 . . .	2 559	2 832	7 424	8 393
200 000- 500 000 . . .	5 043	7 641	10 301	11 171
500 000-1 000 000 . . .	512[f]	2 610[g]	8 385	8 751
1-2 million	0	0	3 820[h]	6 766[i]
2-5 million	7 304[j]	9 638[k]	5 693[l]	15 833[m]
5 million and over . .	0	0	7 892[n]	12 296[n]

[a] Argentina, Brazil, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panama, Paraguay and Venezuela.
[b] Including, in addition to the above, Bolivia, Chile, Colombia, Cuba and Mexico, but not Peru and Uruguay; for the latter two countries, there are census data for 1950.
[c] Size limit: 2 500- 5 000.
[d] Size limit: 10 000-25 000.
[e] Size limit: 25 000-50 000.
[f] Recife.
[g] Bogota, La Habana, Recife and Santiago.
[h] Detroit and Los Angeles.
[i] Baltimore, Cleveland, Pittsburgh, St. Louis and Washington.
[j] Buenos Aires, Rio de Janeiro and São Paulo.
[k] Buenos Aires, Mexico City, Rio de Janeiro and São Paulo.
[l] Chicago and Philadelphia.
[m] Boston, Chicago, Detroit, Los Angeles, Philadelphia and San Francisco.
[n] New York.

large numbers of adolescents and young adults, the age composition of urban populations — other things being equal — favours higher crude birth rates, and sometimes lower crude death rates, than in the rural population.

Actually urban birth rates are lower than rural because the fertility of persons of reproductive ages is usually very much lower in urban areas. The difference between urban and rural death rates, if any, would hardly ever offset the difference in birth rates. Hence, the natural increase in the urban population is almost invariably lower, and sometimes markedly lower, than in the rural population. Apart from factors (*iv*) and (*v*) above, whose importance is secondary, maintenance of higher rates of urban growth depends on high rates of net rural-urban migration. With respect to the latter, crucially important in urban and rural population trends, statistical data are scant and estimates made indirectly not very reliable. Efforts are under way to develop more adequate techniques for estimating and projecting urban and rural population trends as soon as new population census data become available.

Increasing urbanization can appreciably affect the trend in total national population for, as the proportion living under urban conditions increases, some decrease in the average birth rate for the country as a whole is likely to result. This could be so even if specific conditions, in urban and rural areas respectively, remain unchanged.

Two detailed projections of urban and rural population have been made so far by ECLA, one for Colombia, the other for Cuba. Of the two countries, Colombia is more representative of the prospects of urban and rural population change in most Latin American countries. In Cuba, mortality is now very low, urbanization is far advanced, urban fertility has attained a comparatively low level and rural fertility, still high, is decreasing; this set of conditions is not very typical for Latin America.

In the projections for both Colombia and Cuba the assumption was made that migratory transfers from rural to urban areas would be such that, despite a higher natural increase, the rural population would continue to grow at the annual rate of 1 per cent, in broad agreement with some observations for the past. The following results were obtained.

Colombia had 11 459 000 inhabitants in 1951, of which 4 416 000 were urban and 7 043 000 rural. By 1981, a total population of 27 269 000 may be reached, of which 17 772 000 will be urban and 9 497 000 rural. In this case, the percentage of urban population in the total would thus increase during the thirty-year period from 38.5 in 1951 to 65.2 in 1981 and, while the rural population is assumed to increase by 1 per cent each year, the average annual increase in the urban population would be 4.8 per cent. The urban population would double between 1951 and 1965, and again between 1965 and 1981.

Cuba had 5 886 000 inhabitants in 1953, of which 2 664 000 were in localities of 5 000 or more inhabitants, and 3 222 000 in smaller localities regarded, for the purpose of the projection, as rural. By 1983, 6 289 000 of a total population of 10 632 000 would be urban, and 4 343 000 rural, according to this definition. The percentage of urban population would thus rise from 45.3 per cent in 1953 to 59.2 per cent by 1983, and the increase in the urban population would be at an average rate of 2.9 per cent, while the rural population continued to grow by 1 per cent annually. The urban population would double in the 24 years from 1953 to 1977.

The decisive difference between the two examples is that Cuban birth rates are lower in both urban and rural areas, and that a continued decrease in the rural birth rates is assumed. Less migration to cities is then needed to maintain rural population growth at the assumed level. A constant annual increase of 1 per cent in the rural population was assumed in both cases. Whether this latter assumption is also tenable in the long run depends on the part played by concurrent economic and social changes. Consideration of the economic implications may result in population projections such as the two referred to here having to be revised in relation to some foreseeable consequences. In fact, demographic and economic projections should be made by successive mutual approximations.

(b) *Rough estimates*

Pending the receipt of new data and further experimentation with methods, trends in the urban and rural population of most countries have to be estimated roughly, on the basis of projections initially carried out in respect of the total population. Since progressive urbanization can entail a decrease in the average national birth rate, projections of total population in some of the more urbanized countries must take this possible effect into account. In fact selections were made, from available sets of alternative projections, with this criterion in view.[27]

Estimates have also been made, on the basis of evidence that is neither accurate nor complete, of probable trends in urban and rural population during 1950-1960.[28] In particular, the assumed constant rates of rural population increase may, in some instances, prove unrealistic. To assume that the same rates of rural population growth will be maintained over a future period is even more hazardous. No doubt new censuses will soon necessitate changes in some of the assumptions. But with the present limited information, the estimates may at least indicate the magnitude of possible future changes in Latin American urban and rural populations.

The estimates for 1975, given in table 14, have been calculated on this basis and hence should be regarded with due reserve. They can be compared with the estimates for 1950 and 1960 given in table 12.

According to the estimates, the urban population of the twenty republics could increase by almost 100 million between 1950 and 1975. In every country except Uruguay, Argentina and possibly Cuba, it will at least double; in Colombia, Ecuador and some Central American countries it may more than treble, and in Venezuela, the Dominican Republic and Haiti it may increase fourfold, if not fivefold.

Meanwhile the rural population of the twenty republics may increase by nearly 40 million. In some countries, these estimated increases are rather slight (Uruguay, Chile, Paraguay and Venezuela); in others they may amount to 50 per cent (Bolivia, Brazil, Mexico, Peru), and in some others to 66 per cent (Ecuador, the Dominican Republic and Central America). But as the rural estimates depend rather closely on the assumptions made — with respect to estimates of urban and total population — they are nevertheless plausible, being partly in the nature of "foregone conclusions".

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[27] See the projections in table 3 and discussed in Section I, 3.

[28] See the estimates in table 12 and discussed in Section II, 3. As far as possible, the urban population has here been defined as that of localities with 2 000 or more inhabitants.

Table 14

ROUGH ESTIMATES OF URBAN, RURAL AND TOTAL POPULATION IN 1975

(Thousands)

Country	*Urban*	*Rural*	*Total*	*Per cent urban*	*Urban 1975 per 100 urban 1950*	*Rural 1975 per 100 rural 1950*
Argentina	19 231	7 889	27 120	71	174	128
Bolivia	2 389	2 910	5 299	45	236	145
Brazil	43 620	52 168	95 788	46	272	145
Colombia	13 757	8 945	22 702	61	316	128
Chile	7 969	2 831	10 800	74	223	113
Ecuador	2 653	3 793	6 446	41	300	164
Paraguay	1 072	1 142	2 214	48	276	113
Peru	8 332	8 050	16 382	51	280	145
Uruguay	2 629	514	3 143	84	139	100
Venezuela	7 897	2 882	10 779	73	417	113
Total	*109 549*	*91 124*	*200 673*	*55*	*246*	*139*
Costa Rica	771	1 056	1 827	42	332	186
Cuba	5 598	3 585	9 183	61	206	128
El Salvador	1 612	1 959	3 571	45	311	145
Guatemala	2 405	3 497	5 902	41	357	164
Haiti	1 618	3 591	5 209	31	519	128
Honduras	881	1 938	2 819	31	357	164
Mexico	32 054	21 507	53 561	60	291	145
Nicaragua	1 019	1 250	2 269	45	342	164
Panama	832	755	1 587	52	247	164
Dominican Republic	1 861	2 744	4 605	40	406	164
Total	*48 651*	*41 882*	*90 533*	*54*	*290*	*147*
20 Republics	*158 200*	*133 006*	*291 206*	*54*	*258*	*141*

The urban population is here defined as including that of small towns (generally with at least 2 000 inhabitants) as well as big cities. It is calculated as constituting 54 per cent of total population by 1975, as against 39 per cent in 1950 and 46 per cent in 1960. In 1950, the only countries where the urban population was larger than the rural were Argentina, Chile and Uruguay; by 1960, Cuba, Venezuela and possibly Mexico may have joined this group; by 1975, Colombia, Panama and Peru will also have predominantly urban populations. Even Haiti and Honduras, where the urban proportions of the population were the smallest in 1950, may by then have become as urban as Brazil was in 1950.

This last-mentioned estimate, however, does not imply that Haiti and Honduras will soon possess cities as large as some in Brazil. The estimates presented here include small-town populations which, in the smaller countries, will still constitute a large proportion of the urban totals.

(c) *Small towns and big cities*

The faster growth of big cities, as compared with small towns, has already been noted. Projections relating to cities of varying size can also be made, but the methods are still untested.

A report is now in preparation on some implications of the projected population growth in Colombia.[29] According to this, the composition of the urban population — defined here as that of population centres with 1 500 or more inhabitants — has undergone a substantial change which is bound to continue.

In 1938, 620 000 of the urban population of 2 534 000, or about a quarter, lived in cities with over 100 000 inhabitants (Barranquilla, Bogotá and Medellín); 499 000 in towns of 20 000 to 100 000 inhabitants; and 1 415 000, or well over half, in small towns of 1 500-20 000 inhabitants.

In 1951, of an urban population numbering 4 366 000, almost two-fifths, or 1 697 000, lived in the cities of 100 000 and over (Barranquilla, Bogotá, Bucamaranga, Cali, Cartagena and Medellín), 870 000 in the medium-sized towns, and 1 799 000, or slightly more than two-fifths, in the small towns with less than 20 000 inhabitants.

By 1965, when the urban population may total 8 891 000, more than half of the total, or 4 850 000, are likely to inhabit the cities of 100 000 and over;[30] the population of medium-sized towns might then total 1 601 000, and that of small towns, 2 440 000, not much more than a quarter of the urban total.

The inter-censal (1938-1951) and projected (1951-1965) changes are, in fact, similar. In each of the two periods, the population of large cities nearly triples, that of medium-sized towns nearly doubles, and that of small towns increases at a rate comparable to the increase in the total (urban and rural) population. The net result is a vast change in the composition of urban population by size of community.

No such detailed calculations have been made for other Latin American countries, but it is evident that a tremendous growth in big-city populations is to be envisaged. Of an urban population totalling 61 million for the twenty republics in 1950, about 26 million lived in big cities (100 000 and over); also between 16 and 17 million persons then lived in metropolitan agglomerations of more than one million inhabitants. The calculations for Colombia, as well as other observations, make it at least conceivable that the big-city population (100 000 and over) of Latin America could reach 80 million or more by 1975. By then the agglomerations in excess of one million

[29] ECLA, Social Affairs Division, *Some aspects of population growth in Colombia.*

[30] By then Armenia, Cúcuta, Ibagué, Manizales, Palmira, Pasto and Pereira will have been added to the cities listed above.

inhabitants alone may comprise a combined total of 40 r even 50 million inhabitants.

5. Problems of rapid urban growth

Innumerable problems arise, almost visibly, as a result f the rapid city growth in Latin America. While not ll of these have been subjected to quantitative study, hey have already commanded the attention of many esponsible observers.[31] Urban facilities, such as public ransport, sanitation, education, recreation, wholesale and etail trade in food and other essentials, repair and main- enance of streets, buildings and sewerage, social services, he treatment and prevention of crime, etc., barely keep p with the rapidly rising needs. Existing administrative rameworks are often inadequate for the increasing scope f their responsibilities. Municipal budgets are chronically epleted, while little revenue can be raised from the ex- anding group of under-skilled, under-employed families, s yet ill-adapted to urban careers and meeting few op- ortunities for attaining economic solvency. The needs of e new inhabitants, it appears, precede their ability to ontribute effectively to the urban economy, and an ac- eleration in their rate of arrival increases the ratio of ocial charges to municipal income. To effect savings vailable for productive re-investment takes time, but hile some city immigrants may eventually gain material uccess, substantially increased capital resources do not hereby become available in the period during which umerous new immigrants continue to arrive.

The Organization of American States has estimated hat 4.5 million dwelling units must be rebuilt in Latin merica's towns and capital cities to meet present short- ges; "this is approximately the same as the number of milies living in the urban slums and marginal shanty wns, which have been improvised in the vicinity of the opulation centres".[32] The Peruvian National Office of lanning and Urbanization has calculated that in the reater Lima area only 45 712 dwellings were built be- ween 1949 and 1956, while the population increased by 5 000 families.[33] If similar trends persist in other cities, e combined shortage of urban dwellings in Latin Amer- a could easily increase by a million every few years.

Though education is more adequate in cities than in e countryside, the task of keeping up with population crease, despite lower urban birth rates, is formidable. has been calculated by ECLA[34] that 457 000 urban ildren and 418 000 rural children attended elementary schools in Colombia in 1951, as compared with totals of 514 000 urban children aged 7.5 to 12.5 years and 778 000 rural children aged 7.5 to 11.5 years.[35] A policy of complete elementary enrolment in urban and rural schools by 1971 would produce, in that year, 1 560 000 elementary school children in urban areas and 1 128 000 in rural areas. Despite the present relative lag in rural education, urban school enrolment would have to increase by more than a million in twenty years, while rural school enrolment would not have to expand to quite the same extent.

What is true in respect of education and housing is also true as regards various other needs arising in comparable proportions. Demographic calculations can be carried out to determine needs for urban water supplies, hospitals, transport terminals, prisons, slaughterhouses, etc. Other calculations might be made — if the requisite statistics or estimates can be established — concerning savings, both private and public, from which capital resources could be generated while the urban population continues to grow. Even then there is the further complication that the very provision of urban services, however inadequate, might cause a further acceleration in the rate at which they are needed. Many facilities, however necessary, that are found to some extent in the large towns, are even less adequate, or totally absent, in small towns and rural areas. Even insufficient urban services may then provide added incentive for migration to the towns and, as a result, become still less sufficient. In this context, a pressure is also generated which tends to raise the capital-output ratio, itself a determining factor of economic growth in relation to population growth.[36]

> "There is a minimum volume of urban services which must be provided if economic development is not to be distorted. On the other hand, an attempt to meet such requirements on too generous a scale also acts as a brake on economic development. For example, in Latin America a fixed capital investment of 100 dollars generates on an average a production amounting to 40-50 dollars *per annum*. The same 100 dollars invested in residential building generates only 10 to 12 dollars annually. It may well be that the yield on investment in other urban services is also low. Consequently, the greater the proportion of investment resources earmarked for urban services, the slower — up to a point — will be the pace of economic development. But as the more plentiful provision of urban services increases the town's attraction for the country dweller, over-urbanism tends not only to slow up development, but also to accelerate urbanization." [37]

6. Problems of urban concentration

It is doubtful, to say the least, that the marked trend towards concentration in Latin America's large cities can be attributed to economic factors alone. An "urban bias" may be inherent in Latin civilization, or illusions may be widely held about the social and cultural advantages of the metropolis. Small-town residents may be more attracted to some of the leading cities than economic grounds would warrant. Entrepreneurs may often neglect, and even disdain, existing development opportunities in some of the smaller towns.

In an economic model, factors tending towards urban concentration can be singled out from others which tend

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[31] Many economic, social, administrative and sociological pro- ems were reviewed in the contributions made to the Seminar Urbanization Problems in Latin America, Santiago, 6-18 July 59 (see E/CN.12/URB/2 to 25, also conference papers sub- tted during the proceedings, and the Report of the Seminar, CN.12/URB/26./Rev.1; UNESCO/SS/URB/LA/26/Rev.1). A re systematic, but much shorter review, was made in Chapter ("Urbanization in Latin America") of the United Nations *port on the World Social Situation* (E/CN.5/324/Rev.1; ST/ A/33), United Nations publication, Sales No.: 1957.IV.3 pp.)-192).

[32] The Pan American Union (Programme of Planning, Hous- and Building, Department of Economic Affairs), *Programmes the Organization of American States connected with urbani- ion in Latin America*, submitted as Conference Paper No. 2 the Seminar on Urbanization Problems referred to in foot- te[28].

[33] Luis Dorich T., *Urbanization and physical planning in Peru* /CN.12/URB/5), *Ibid.*

[34] *Some aspects of population growth in Colombia* (in prepa- ion).

[35] In Colombia, a five-year elementary curriculum is provided for urban schools, and a four-year curriculum for rural schools.

[36] See the discussion in Section I, 6.

[37] *Report of the Seminar on Urbanization Problems in Latin America* (E/CN.12/URB/26/Rev.1), p. 31.

to produce urban dispersal. For example, added investments in transport facilities may reduce per-unit transport costs, result in more traffic, and therefore stimulate further transport investments; where such factors are dominant, the tendency is for large centres to grow rapidly while small centres stagnate. On the other hand, high wages in one locality might stimulate the adoption of a capital-intensive mode of production, thereby reducing local employment and hence local wages, whereas the opposite cycle might occur in another locality with an initially low wage level; subject to such influences, the urban population would tend to be more widely distributed among several centres. In the long run, tendencies towards excessive concentration would encounter increasing costs, thereby eventually giving greater weight to those factors which favour dispersal. Nevertheless, early operation of this balancing principle does not seem ensured for, "if the process of transition is uncontrolled, there seems to be a tendency for those industries intrinsically less tied to cities, to develop nevertheless in the vicinity of the major urban centres." [38]

Studies have been made of the role of inter-community equilibrium which, in relation to the functions of industrial and commercial location, tends to bring about empirically verified distributions of the population among cities of varying size. The precise functional relationships remain obscure, but the scholars agree that to an adequate distribution of economic functions corresponds, ordinarily, a fairly regular population distribution by size class of community.[39] If, as is so often the case in Latin America, city distributions are far from regular, it may well be inferred that non-economic factors interfere to a considerable extent and, furthermore, that the existing population distributions impede the growth and equitable spread of economic benefits within those countries.

As against this scheme — which implies some homogeneity of the economic system — one may note in many countries the prevalence of comparatively inefficient, pre-modern, economic processes and the relatively small size of the modern productive sectors where processes are incomparably more efficient. These modern sectors, for a time, may be small and therefore isolated in a few cities, although other sectors, employing the bulk of the labour force, are not competitive. But such compartmentalization between modern and traditional segments of the economy cannot be sustained in the long run. The cities, which are the nuclei of efficient forms of activity, while not yet offering a large amount of employment of a modern type, are already massively invaded by migrants proceeding directly from the more primitive forms of economic organization which languish, or perish, in the competition.

From the sociological point of view, economic and social development involves a transition of persons from the less organized, or less integrated, activities still proper to the countryside and small towns, to the more co-ordinated and specialized transactions which emanate from the larger centres. In this continuum, the range of appropriate skills, attitudes, work habits, living patterns and inter-personal relations vary immensely from one extreme to the other. The transitions made by individuals are facilitated as they pass from rural to small-town activities and, in turn, from a small-town environment to that of bigger cities. Rural-urban migration in the countries of earlier technological development, in fact, has largely proceeded by such successive steps. In the presence of adequate "intervening opportunities",[40] offered presumably by a sufficient group of lively small towns, the successive passages are eased; but, where small towns are few and stagnant, the passage from one extreme to the other can become very difficult. A large and insufficiently assimilated proletariat is then suddenly immersed in the big-city environment where its economic and social integration can pose problems that seem almost insuperable.[41]

7. Urbanization and employment problems

The employment problems associated with the growth of cities are not readily illuminated by available statistics of a conventional type, and at present can only be effectively examined on the basis of a large number of local investigations and descriptive study. An extensive review of studies of urbanization problems in Latin America and other parts of the world appeared in the United Nations *Report on the World Social Situation.*[42] Whereas superficial examination shows most potential workers to be associated with some type of employment or other, closer analysis reveals that the given types of employment are often a disguise for what should rather be described as under-employment. While widespread under-employment also characterizes the rural areas of the countries concerned, it is not known whether this wastage of available manpower is being significantly reduced as a result of urbanization.

> "Open unemployment is not a serious problem in most of the Latin American countries, either among the permanent city population or the migrants (Cuba and Puerto Rico, in which a high proportion of the labour force depends on seasonal plantation work, are the known exceptions). However, ...with the probable exceptions of Argentina and southern Brazil, the growth of the cities 'has multiplied considerably the unsalaried sector of the urban lower class: poor artisans, shopkeepers on a small scale or with semi-permanent places of business, hawkers and workers, many of whom have occupations that constitute incredibly poorly paid forms of under-employment'. As in other less-developed regions, there has been a transfer of rural under-employment to the cities, where it may be statistically concealed under 'services' or 'activities not defined'." [43]

This statement needs qualifying as regards service employments. Where the standard of living is high and rising, services destined for direct consumption can be very productive and expand accordingly. Also some services (transport, commerce, banking, etc.) are ancillary to industries, especially those of large scope and complexity, where such co-ordinating functions are increasingly required; at an advanced level of industrialization these

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[38] T. Vietorisz, *Urbanization and economic development* (E/CN.12/URB/24), p. 7.

[39] The findings of relevant studies have been summarized in *The determinants and consequences of population trends* (ST/SOA/SER.A/17), pp. 175-176, United Nations publication, Sales No.: 1953.XIII.3.

[40] Stouffer's theory of migration and "intervening opportunities" is discussed in *The determinants and consequences of population trends, op. cit.*, p. 128.

[41] Some sociological considerations involved in this order of problems were discussed in "Three sociological aspects of economic development", *Economic Review of Latin America*, special issue (Bogotá, August 1955), pp. 56-65.

[42] *Op. cit.*, see footnote[31].

[43] *Ibid.*, p. 181. The quotation included in this passage is from José E. Iturriaga, *La Estructura Social y Cultural de México* (México, D. F., Fondo de Cultura Económica, 1951), p. 40.

Table 15

INDICES OF URBANIZATION AND INDUSTRIALIZATION FOR SELECTED LATIN AMERICAN COUNTRIES, IN THE LATEST CENSUS YEAR

Country	Census year	Indices of	
		Urbanization[a]	Industrialization[b]
rgentina	1947	48.3	26.9
hile	1952	42.8	24.2
enezuela	1950	31.0	15.6
olombia	1951	22.3	14.6
razil	1950	20.2	12.6
olivia	1950	19.7	15.4
cuador	1950	17.8	17.8
araguay	1950	15.2	15.5
eru	1940	13.9	13.2

OURCE: Official census data.
Percentage of total population in places of 20 000 or more inhabitants.
Percentage of economically active males engaged in manufacturing, construction, gas and electricity.

ight profitably expand more rapidly than the industrial mployments themselves. Such conditions would be more kely to exist, if at all, in a country like Argentina — hose levels of living and industrialization are at least omparatively high — than in most other Latin American ountries.

With lower degrees of industrialization, it no doubt mains true that the establishment or expansion of inustry is a factor which stimulates urban growth. But re the stimulus would seem excessive when the resulting opulation influx greatly exceeds the rate of growth in dustrial employment. Contrary to what might be excted, data for seven of nine countries[44] show indices of urbanization which range from 14 to 31, with corresponding indices of industrialization in the narrow range of 13 to 18, there being no noticeable relationship between the two. By contrast, industrialization and urbanization in Argentina and Chile are at a distinctly higher level. (See table 15.)

As a measure of industrialization, the crude index shown is inadequate. First, because the variable relationship between industry and ancillary services is left unexplored. Secondly, because industrial employment itself has a greatly variable composition. In the above, Paraguay, half as urbanized as Venezuela, nevertheless has a comparable number of industrial jobs. It would seem — although detailed statistics are more difficult to obtain — that in the countries of limited industrial development there exists a proliferation of handicrafts and dwarf industries, with minimal amounts of capital, labour employed per workshop, and incomes earned which, nevertheless, provide some employment for relatively large numbers of persons.

A somewhat better index of industrialization is the percentage of active workers in manufacturing who earn salaries and wages. Indices of urbanization are compared below (table 16) with indices of industrialization of the latter type, for seven Latin American and seven European countries. Whereas in European countries the proportion of industrial wage and salary-earning workers is at least 50 per cent of, and sometimes almost equal to, the proportion of urban population, in Latin American countries other than Costa Rica and Puerto Rico the one proportion is only one-quarter to one-third as great as the other.[45]

Not only are Latin American countries less industrialized than European countries are, or were, at similar levels of urbanization, but the increase in Latin America's urbanization — as distinct from Europe, North America, or the Soviet Union — was not accompanied by a

[44] "Demographic aspects of urbanization in Latin America", per submitted by the Population Branch, United Nations reau of Social Affairs to the Seminar on Urbanization Probns in Latin America (E/CN.12/URB/18), p. 53.

[45] Data according to United Nations, *Report on the World Social Situation* (E/CN.5/324/Rev.1), p. 129, *op. cit.*, table 11.

Table 16

URBANIZATION AND STRUCTURE OF EMPLOYMENT

Country	Census year	Urbanization index[a]	Industrial employment index[b]	Second index as a percentage of the first
Latin American countries				
Costa Rica	1950	10.9	8.2	75
Puerto Rico	1950	27.1	16.2	60
Haiti	1950	5.4	2.0	37
Argentina	1947	48.3	17.3	36
Mexico	1950	24.0	8.4	35
Bolivia	1950	14.0	3.8	27
Venezuela	1950	31.0	7.1	23
European countries				
Switzerland	1950	31.2	33.4	107
Sweden	1950	34.5	28.7	83
Finland	1950	24.0	18.4	77
Western Germany . . .	1950	45.3	27.6	61
France	1946	31.4	18.9	60
Great Britain	1951	67.7	38.6	56
Austria	1951	39.8	21.5	54

[a] Percentage of total population in places of 20 000 or more inhabitants.
[b] Percentage of total active labour force working as salaried employees of wage earners in manufacturing.

Table 17

SELECTED INDICATORS OF TIME CHANGES IN URBANIZATION AND INDUSTRIALIZATION

Country	Census year	Urbanization[a]	Industrialization[b]
Chile.	1920	28	30
	1950	40	30
Cuba.	1919	23	20
	1943	31	18
Mexico.	1910	11[c]	22
	1950	24[c]	17
Sweden	1910	16	27
	1950	30	41
United States	1910	31	31
	1950	42	37
Soviet Union	1928	12	8
	1955	32	31

[a] Per cent of total population living in localities of 20 000 or more.
[b] Per cent of total labour force engaged in maning and quarrying, manufacturing, construction and utilities (electricity, gas and water).
[c] Per cent of total population living in localities of 100 000 or more.

commensurate increase in industrialization. This fact has been illustrated with a set of figures including those below (table 17).[46] Again, the possible expansion of ancillary service employments (notably in the United States) should not be lost sight of, but the Latin American observations are contrary to those made in technologically more advanced areas.

It is doubtful that reported industrial employment some 40 years ago was composed similarly as that reported more recently. Industrial productivity and labour efficiency have, of course, increased. The result can sometimes be a smaller proportion of machine-equipped workers, producing far more than did a previously large number of artisans who, meanwhile, have been supplanted. At high levels of economic development, contractions in the proportion of workers in secondary (i.e., mainly industrial) employment, in fact occur, while there is a corresponding expansion of tertiary (i.e., service) employment of an industry-supporting type. In a less advanced economy, the expansion of the tertiary sector can be a very different phenomenon requiring most careful study.

It is to be noted that service jobs are of greatly varying types, ranging from the polishing of shoes in the street to high ministerial posts in government. Some service employment, e.g., in banking, insurance, large-scale commerce and transportation, reinforce a more integrated industrial economy. Other branches of employment, e.g., doctors, teachers, entertainers, etc., minister to the demands of a rising standard of living. Unfortunately, as is well known, services that are unsolicited or only in small demand are being performed in Latin America by a low class of urban workers so numerous that their earnings are not far superior to those of beggars. This class of work, the most obvious form of under-employment, may or may not have been increasing in the course of time. The phenomenon is not satisfactorily measured by conventional statistics. While there are no systematic data of direct relevance, some information is provided in descriptive reports; the following account is from Uruguay, a country long urbanized and of slow population growth where, presumably, this type of problem would be less acute than in many other countries of Latin America:

"...a group that aptly call themselves the 'changas' (odd job) men. There are many of these. They take whatever work comes along, spend a little time at it, and go on to do a series of different jobs. They are always tired after a short time, because they have a very limited education and absolutely no knowledge of the work they are doing, so in spite of the goodwill they had in the beginning they fail, and eventually they lose their geniality. Many of these workers are people who come from the country, hoping to find work in new factories. After they arrive, they realize that even for this they need some preparation. They accept these very temporary jobs and seem to lose all chance of ever becoming steady workers. Many of the suburban areas are made up of these people who live there with their families. The improvement of their status, or at least of that of their children so that they may become efficient industrial workers, is one of the most difficult tasks ahead."[47]

8. The problem of urban-rural balance

The inordinate effects of rapid growth in big cities, produced by high rates of natural increase in the rural population, epitomize the population problem of Latin America. Paradoxically it is a region of under-utilized resources. Except in certain limited areas, population is not generally in excess. But the large annual population increments, not automatically redistributed in desirable directions, now cause appreciable damage to the economy and society.

Merely to deplore the adverse consequences of population growth does not ease the conscience while remedial action is possible. Se long as population is not believed to be growing in excess of available resources the remedy will have to be found through a restoration of balances. In big cities, small towns and rural areas alike, a balance is needed between the rate of population growth, the absorptive capacity of a growing economy, and the social and institutional framework which assists in bringing these several trends into closer equiparity. The several regional balances, furthermore, must be mutually consistent because a relative imbalance in one area, through dislocations of population or of economic and social initiatives, provokes disequilibria in other areas as well.

While in the case of international migration, controls on the movements of persons can be, and are being, applied, this can hardly be done with movements inside a country. Not only would it be difficult to establish the official machinery for this, but such direct interference with free movement would be resented as an intolerable infringement of human freedom. The movements can nevertheless be influenced by various economic and social incentives or action programmes.

Likewise, while there is a system of free initiatives in economic enterprise, stimuli as well as dampers can be instituted which encourage the unfolding of certain initiatives in some areas and discourage it in others. Where population movements are uncontrollable, the plan of economic and social development will have to accept them as they occur and distribute its projects accordingly. Where appropriate economic and social measures fail, other means would have to be found to influence the non-

[46] *Ibid.*, p. 125.

[47] Report of the Uruguayan National Committee to the Eighth International Conference of Social Work, Munich, August 1956, quoted in United Nations, *Report on the World Social Situation*, (E/CN.5/324/Rev.1) *op. cit.*, p. 180-181.

onforming migratory tendencies. Where some measure of influence can be gained on each of several components in the balance, a convergent approach in which economic, social and demographic tendencies are affected simultaneously might sometimes be the most commendable procedure. "Population policy" then becomes a corollary of a well-designed policy of balanced economic and social development.

The action to be taken in a given case cannot be determined without detailed demographic, economic and sociological study, account being taken also of the ways in which demographic, economic and social change mutually affect each other. On the basis of such studies, which have scarcely yet been made, an adequate policy aiming at the needed balances may conceivably be drawn up. Listed below are some of the possible elements of such a policy[48] although, of course, it can never be said *a priori* in what proportion they ought to be applied in any given instance:

(i) Policies designed to increase rural employment: land settlement, land reform, labour-intensive processes, rural industries (e.g., food processing, cottage crafts, repairs, etc.);

(ii) Policies designed to increase rural purchasing power: improvement and diversification of agricultural produce; improved marketing; improved implements; irrigation, drainage, electricity; improved transport; etc.;

(iii) Policies designed to improve rural social conditions: improved education, housing and health; co-operatives and other communal actions integrative of communal inter-personal relations; recreational facilities, etc.;

(iv) Policies aiming at a wider dispersal of industries, the intensified commercialization of small towns, and the improvement of small-town social conditions;

(v) Policies tending to raise the qualifications, orient the direction and develop the requisite attitudes of migrants or potential migrants moving towards towns and cities;

(vi) Policies aiming at the assimilation and economic and social integration of city immigrants, including the rehabilitation of under-privileged groups, and the orientation and guidance of the children of socially less successful former immigrants.

[48] The points considered here mainly from a standpoint of population balances are consistent with agricultural development and utilization of rural manpower. See the article in this issue of the *Bulletin* entitled "An agricultural policy to expedite the economic development of Latin America."

This sketchy review of types of policy programmes which, under some given conditions, may profitably be resorted to, merely underlines the necessity for studies of the problem of urban-rural balance, in which the several approaches made by economists, demographers and other experts are brought into convergent focus. That the study problem has great complexity can be easily recognized but, in view of its urgency, foreseeable difficulties ought not to discourage the attempt.

At the same time, the need for a high over-all rate of economic growth must not be lost sight of, for:

> "The pressure of population on land, which contributes to what is judged to be over-urbanization in so many of the less developed countries, means ... that these same countries are in a similar sense 'over-ruralized'; i.e., there are too many people for the existing modes and levels of production in both the urban and the rural sectors. Both sectors are economically under-developed; 'over-urbanization' is but another way of describing the economic under-development that characterizes the cities and their relation to the countryside." [49]

[49] United Nations, *Report on the World Social Situation, op. cit.*, p. 124.

III. SEX-AGE COMPOSITION

1. Composition of national populations by age

Little need be said about the composition of national populations by sex. Large military losses have not been incurred by a Latin American country in any recent war. Ordinarily, the two sexes are very nearly balanced though in some countries, where international migration has been important, there is a slight relative excess of males. Internal migration, on the other hand, tends to redistribute men and women in less equal proportions among the regions and segments of a country.

The age composition of a national population reflects mostly the past trend of the birth rate. The effects of variations in mortality on age structure are, in comparison, small. While, with lower death rates, more persons survive to advanced ages, infant and child mortality are reduced simultaneously; more persons also survive to the ages of parenthood, with the likely result that more children are born. Hence, the effects of decreasing death risks on numbers of persons alive at each age, on the whole, are nearly proportionate, though not entirely so.[50]

[50] As demonstrated, for example, in "The cause of the ageing of populations: declining mortality or declining fertility?" *Population Bulletin of the United Nations*, No. 4, Dec. 1954 (ST/SOA/Ser.N/4), pp. 30-38.

Inaccuracies of age statement and incomplete enumeration of children affect most of the national census data. These errors have been partly eliminated in the population projections selected by the ECLA secretariat.[51] The resulting estimates for 1960, as regards composition by sex and age, may in some instances be more accurate than the census data themselves. Projections into the more distant future depend on uncertain assumptions as to the future trend in fertility and mortality. Consistent estimates of the percentages of population in three broad age groups are presented below, for 1960 and 1975.

The countries in table 18 have been arranged according to the estimated proportion of children (under 15 years of age) in 1960, which ranges from 45 per cent in Guatemala and Nicaragua to 26 per cent in Uruguay. With the trends in birth rates which can be plausibly foreseen, this percentage may rise slightly in some instances,[52] and decline slightly in others.[53] Significant decreases in the

[51] See table 5 of the *Statistical Supplement* mentioned.

[52] With constant fertility and decreasing mortality, especially child mortality, a slight rise in the percentage of children occurs.

[53] Reasons for possible future declines in fertility have been discussed in section I-4 of this article. The possible declines in the birth rate, however, would not be fully reflected in the decrease of the percentage of child population because declining

Table 18

LATIN AMERICA: AGE COMPOSITION OF THE POPULATION, BY COUNTRIES, 1960 AND PROJECTION FOR 1975

(Estimated percentage of total population)

Country	*Year*	*Per cent of total population aged*		
		Under 15	*15-64*	*65 and over*
Guatemala	1960	44.7	52.9	2.4
	1975	46.6	51.0	2.4
Nicaragua	1960	44.6	53.0	2.4
	1975	45.2	52.2	2.6
Colombia	1960	44.3	53.0	2.7
	1975	42.6	54.3	3.1
Peru	1960	44.1	52.9	3.0
	1975	44.3	52.4	3.3
Costa Rica	1960	44.1	53.2	2.7
	1975	44.3	52.6	3.1
Ecuador	1960	44.0	52.9	3.1
	1975	44.9	52.0	3.1
Dominican Republic	1960	43.9	52.8	3.3
	1975	45.1	51.6	3.3
Mexico	1960	43.7	53.5	2.8
	1975	42.4	54.3	3.3
El Salvador	1960	43.1	54.3	2.6
	1975	43.5	53.5	3.0
Venezuela	1960	42.5	54.7	2.8
	1975	39.8	56.9	3.5
Paraguay	1960	42.4	54.2	3.4
	1975	44.2	51.9	3.9
Brazil	1960	42.3	55.0	2.7
	1975	41.8	55.0	3.2
Honduras	1960	42.0	54.7	3.3
	1975	42.7	54.1	3.2
Bolivia	1960	41.9	55.1	3.0
	1975	43.0	54.0	3.0
Haiti	1960	41.6	55.8	2.6
	1975	42.5	54.5	2.9
Panama	1960	41.5	54.6	3.9
	1975	40.2	55.4	4.4
Chile	1960	38.8	57.1	4.1
	1975	38.2	57.2	4.6
Cuba	1960	36.0	59.6	4.4
	1975	32.5	61.8	5.7
Argentina	1960	30.4	64.5	5.1
	1975	28.7	64.3	7.0
Uruguay	1960	26.2	65.9	7.9
	1975	24.3	64.7	11.1
Combined population of 20 Republics	*1960*	*42.7*	*54.3*	*3.0*
	1975	*40.6*	*55.6*	*3.8*

percentage of children appear plausible in the cases of Argentina, Cuba, Uruguay and Venezuela.

The percentage of persons of advanced age is generally small, between 2.5 and 3.0 in the high birth-rate countries with high percentages of children. It attains 4 per cent in areas of somewhat lower birth rates (Panama, Chile and Cuba), 5 per cent in Argentina, and probably almost 8 per cent in Uruguay whose birth rates have for some time past been the lowest. Declining mortality may raise this percentage only slightly. The ageing of the population becomes significant in the countries of lowest birth rates (Cuba, Argentina and Uruguay).

Persons in the age range from 15 to 64 years are generally most able to participate effectively in productive work. But the proportion of this "active" age segment is generally small, between 52 and 55 per cent in the majority of the countries. Nor is this proportion expected to change much. In some countries with past declines in the birth rate, the relative size of the "active" population is greater and rising, attaining about 65 per cent in Argentina and Uruguay. A rise beyond two-thirds is not to

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mortality results in the survival of a relatively increased proportion of children.

be expected because progressive ageing of the population eventually counteracts this tendency. From an economic point of view, the populations with high proportions in the 15 to 64 year age bracket are more "efficient", there being almost two potential workers per non-working dependent. In the populations of many Latin American countries, on the other hand, the number of potential workers barely exceeds that of the dependents.[54]

What the population of countries with lower birth rates gain in structural efficiency they may lose by a reduced flexibility. Persons past a certain age, such as perhaps 40 years, are less adaptable to the changing requirements of a growing economy than younger workers. The percentages of persons aged less than 40 years within the 15-64 year age group can be estimated from the population projections in table 19, the countries being arranged in the same order as in table 18.

The specific adaptability of younger workers to new tasks, however, depends also on the education which they have acquired. This makes it doubtful whether the potentially greater flexibility of a youthful labour force, in most countries, can be used to good advantage. Panama, Chile, Cuba, Argentina and Uruguay are precisely among the countries where the educational level is more distinctly above the Latin American average. The potential advantage of those countries where seven or more out of ten persons in the 15-64 year age group are under 40 will be largely lost unless early efforts are made to provide better education on a larger scale. These efforts will draw more heavily on the economic capacity of the high birth-rate countries because the number of children to be educated is relatively large. A comparative measure of the needed educational investments may be obtained as follows. Let it be assumed that one school teacher is required for every 50 children aged 5-14 years.[55] The "educational burden", to be assumed by the population of "active" ages, can then be comparatively measured as the number of persons who would have to be school teachers relative to every 1 000 persons aged 15-64 years. This comparative measure is presented in table 20, according to the same order of countries as in the two preceding tables.[56]

[54] The proportion of population between 15 and 64 years of age is not a measure of the actual labour force. In particular, the economic activity rates of women can vary widely and there are varying degrees of active labour force participation on the part of children, adolescents, and aged persons. The comparison is one of potentially "active" persons — whether their activity be "economic" or domestic and unremunerative — rather than actual labour force. It is also to be considered that in high birth-rate countries women can generally devote less time to economic activities than they can in countries with lower birth rates.

Table 19

PERSONS AGED 15-39 YEARS PER 100 PERSONS AGED 15-64 YEARS IN LATIN AMERICAN COUNTRIES, 1960 AND PROJECTION FOR 1975

Country	*1960*	*1975*
Guatemala	72	73
Nicaragua	73	72
Colombia	71	71
Peru	71	71
Costa Rica	71	71
Ecuador	71	71
Dominican Republic	71	71
Mexico	71	72
El Salvador	71	71
Venezuela	70	69
Paraguay	70	71
Brazil	70	70
Honduras	70	70
Bolivia	71	70
Haiti	70	70
Panama	69	70
Chile	67	67
Cuba	66	65
Argentina	62	59
Uruguay	57	55
Combined population of 20 Republics	*69*	*69*

Table 20

NUMBER OF SCHOOL TEACHERS HYPOTHETICALLY REQUIRED PER 1 000 PERSONS AGED 15-64 YEARS IN LATIN AMERICAN COUNTRIES, 1960 AND PROJECTION FOR 1975

Country	*1960*	*1975*
Guatemala	9.7	10.6
Nicaragua	9.7	10.5
Colombia	10.2	9.5
Peru	10.0	10.1
Costa Rica	9.8	10.2
Ecuador	9.9	10.4
Dominican Republic	10.0	10.5
Mexico	10.1	9.5
El Salvador	9.3	9.8
Venezuela	9.3	8.7
Paraguay	9.4	10.2
Brazil	9.2	9.4
Honduras	9.2	9.6
Bolivia	9.1	9.6
Haiti	8.9	9.4
Panama	9.4	8.9
Chile	8.4	8.3
Cuba	7.6	6.6
Argentina	6.1	5.8
Uruguay	5.2	5.0
Combined population of 20 Republics	*9.0*	*8.9*

2. Urban and rural population structures

In Latin America, more women than men leave the countryside to live in the cities.[57] Women generally outnumber the men in the urban population, whereas a relative excess of men remains in the rural population. Sex ratios, indicating the number of males per 100 females, are brought together in table 21 for Latin America and some other countries. The Latin American countries appear in the order of their degree of urbanization, at the last census, as measured by the percentage of total population in places with 20 000 or more inhabitants.

[55] The required minimum school curriculum is shorter than 10 years. One teacher for every 50 children aged 5-14 years is roughly equivalent to, say, one teacher for every 30 children aged 7-12 years (assuming, for example, a 6-year school curriculum), which might be a desirable standard. Of course, the intention of this calculation is only to provide a comparative measure.

[56] The relative "educational burden" of the high birth-rate countries is even heavier when it is considered that, owing to the presence of large numbers of small children below school age, fewer women can make themselves available as teachers than, say, in Argentina or Uruguay where women are less engaged with the care of children below school age. Actually, a more extensive school curriculum, aiming at higher standards has already been in effect for a longer period in some of the low birth-rate countries as compared with many of the high birth-rate countries.

[57] In that respect, this region is similar to Europe and other areas of European settlement. In Asia and Africa, the opposite result is observed.

Table 21

MALES PER 100 FEMALES IN THE URBAN AND RURAL POPULATIONS OF COUNTRIES OF LATIN AMERICA AND SELECTED OTHER COUNTRIES

Country	*Census year*	*Males per 100 females*	
		Urban[a]	*Rural*[a]
Latin America			
Argentina	1947	97	120
Chile	1952	85	110
Cuba	1953	96	118
Venezuela	1950	99	107
Mexico	1950	90	103
Panama	1950	94	111
Colombia	1951	86	108
Brazil	1950	91	104
Bolivia[b]	1950	86	103
Ecuador	1950	91	103
Costa Rica	1950	87	107
Nicaragua	1950	79	108
Paraguay	1950	89	99
Peru[c]	1940	102	97
El Salvador	1950	87	105
Guatemala	1950	93	105
Dominican Republic	1950	85	106
Honduras[d]	1950	93	101
Haiti[d]	1950	72	96
Other countries			
Sweden	1950	93	108
United States	1950	94	106
India	1951	116	104
Turkey	1950	108	99
Union of S. Africa	1951	119	93

[a] Urban and rural as defined in each census, except where stated otherwise.
[b] Urban: municipios of La Paz and Cochabamba. Rural: rest of country.
[c] Urban: six predominantly urban districts. Rural: rest of country.
[d] Urban: localities with 20 000 or more inhabitants. Rural: rest of country.

As the data of table 21 suggest, urban sex ratios are usually higher in the more urbanized countries of Latin America than in the less urbanized countries, but the comparatively high ratios in Argentina, Cuba and Venezuela are partly due to the effect of international immigration where males predominate. Because of geographic features, perhaps, internal migration has had a similar effect on the balance of the sexes in the city population of Peru.

Rural surpluses of males likewise are the greatest in some of the most urbanized countries, especially Argentina, Cuba, Panama and Chile. This is to be expected for with a persistent pattern of sex selection in rural-urban migration, continued urbanization tends increasingly to distort the sex balance in the rural population where the number of females is constantly decreasing. Experience confirms that this process has generally been at work.

Greater attraction of women to cities, or greater retention of men by the countryside, is a feature of social mechanisms in the European culture sphere. The opposite tendencies prevail in regions of non-European cultures. The phenomenon has rarely been studied in much detail. In Latin America, it appears that sex selectivity of migration already appears at the earliest ages: often more children aged 5-9 years are female in the urban population, while more are male in rural areas. More girls than boys accompany the group of migrants, mostly young adults, in which women are more numerous than men. Migrant women, on an average, are younger than migrant men. From middle age onward, there appears to be a net balance of return movements to the country on the part of men, but there seem to be no significant return movements in the case of women.

All Latin American countries exhibit nearly the same striking difference between urban and rural age composition. Rural areas have comparatively more children whereas in urban areas the proportion of young adults is much greater. Urban areas also have slightly higher proportions of middle-aged persons, but not of persons of advanced age. In this respect, the big cities differ more sharply from rural areas than do the smaller cities and towns. In a recent study, data for 18 Latin American countries have been assembled from recent censuses, invariably showing the same contrasts.[58] These data are summarized above by means of the unweighted averages of the percentages noted in each of the eighteen countries.

Considering the definitions used in that study, about one-quarter of the combined regional population is "urban", while about one-third of the combined "urban" population is that of big cities. One can then reconstruct separately the age groupings that would be typical of rural areas, the smaller towns and large cities. Such schematic figures, of course, do not reflect the precise conditions of any one country. Since, with the definitions used, the "rural" population includes towns smaller than 20 000 inhabitants, it is probable that in the strictly rural population, excluding those small towns, the proportion

[58] *"Demographic Aspects of Urbanization in Latin America"* (E/CN.12/URB/18; UNESCO/SS/URB/LA/18), *op. cit.* The two republics not included are Cuba and Uruguay for which, at that time, recent census data were not available.

Table 22

AVERAGE PERCENTAGE OF TOTAL, URBAN AND BIG-CITY POPULATION IN FOUR BROAD AGE GROUPS

(Unweighted averages, based on recent census data of 18 Latin American countries)

Population	*Under 15*	*15-39*	*40-59*	*60 and over*
Total	41.1	39.4	14.0	5.5
Urban[a]	34.2	44.9	15.4	5.5
Big cities[b]	30.8	46.2	17.6	5.4

[a] Defined to coincide so far as available data permit, with the population of localities of 20 000 or more inhabitants.
[b] Federal District of Mexico, Greater Buenos Aires, Federal District of Brazil, São Paulo, Greater Santiago, Bogota, Lima and Caracas Metropolitan Area.

of children is even higher, and that of young adults even lower, than in the reconstructed percentages shown below.

Population	Age groups (years) Under 15	15-39	40-59	60 and over
Rural	43.5	37.5	13.5	5.5
Medium-size towns .	35.5	44.5	14.5	5.5
Large cities	30.8	46.2	17.6	5.4

Such figures — not exactly the same in every country — have important implications for a variety of policy problems, including employment, education, vocational training, housing, public health, industrial location, etc. City populations, with many young adults, would be more "active", economically or otherwise, than rural populations, if the partly rural origin of their inhabitants could be disregarded. For instance, for every 10 young adults there are nearly 12 children in the countryside, but less than 7 children in the large cities. The burdens of education and child care which must be assumed *within* the cities might seem comparatively light. Many migrants, however, come precisely from those regions where these burdens, in relation to local resources and manpower, are particularly heavy. As these migrants swell the urban labour force, it is only fair to consider that the cost of education in rural areas should be borne partly from incomes produced in the cities, in order to raise the qualification of urban manpower.

At the same time, the need for rural education directed towards specifically rural requirements must be given equal consideration. If the persons lost to the countryside are precisely those who have also obtained at least some education, it is to be feared that persons who remain in the country have too little training or other qualifications to become adapted to local economic and social improvements. A vicious circle can then result in which the rural exodus becomes its own perpetuating cause.

. Trends in urban and rural population structure

It is not sufficient to regard the structures of urban and rural populations from a static point of view. With a given incidence of migration to cities, and with given rates of growth in either the rural or the urban population, the structures are apt to change in the course of time. Education, apprenticeship or vocational guidance are also directed at future manpower needs while existing resources must be invested in order eventually to meet these requirements.

In this respect conditions vary from country to country. There is need for separate national projections of the population by urban and rural segments, with assumptions related to observed demographic trends and also to economic opportunities, prospects or programmes. Methods for such projections are being currently developed by the Demographic Centre at Santiago and ECLA and ought to become ready for application when the more detailed results of new population censuses are available.

In the population projections for Colombia and Cuba, already referred to, the age compositions of urban and rural population, respectively, seem apt to change as indicated in table 23.

In both instances, the proportion of children increases in urban areas; their relative decrease in rural areas is the calculated result of the continued emigration of many young women and, in Cuba, also of decreases in rural fertility. A considerable ageing is indicated for the rural population in both instances, as also for the urban population of Cuba, because of past decreases in birth rates. In both countries the sex balance of the urban population tends to become more nearly even, while in the rural population it becomes more distorted with time.

It follows that particular sex-age segments, in the urban as well as the rural population, can increase at quite different rates. For instance, the increase in the population of elementary school age is very rapid in urban areas, but quite slow, in comparison, in the rural areas. There is also a particularly rapid growth in the segment of urban adolescents, or young adults, since these are the ages at which numerous additional migrants arrive from rural areas.

The assumption can, of course, be varied to illustrate the possible consequences of any different course of events. Changes in the trends of urban or rural birth rates, in the intensity or the composition of rural-urban migration, and in the economic circumstances conditioning them, may have a number of different results. The methods and assumptions to be used in this context are now under

Table 23

COLOMBIA AND CUBA: CHANGES IN SEX AND AGE COMPOSITION OF URBAN AND RURAL POPULATION, AS CALCULATED IN POPULATION PROJECTIONS

Year	Per cent of population in age groups indicated: Urban population			Rural population			Males per 100 females	
	Under 15	15-64	65 and over	Under 15	15-64	65 an over	Urban	Rural
Colombia								
1951 . . .	40.3	56.8	2.9	45.5	52.0	2.5	86	108
1961 . . .	42.5	55.1	2.4	46.0	51.0	3.0	88	113
1971 . . .	42.6	55.1	2.3	43.2	53.0	3.8	91	116
1981 . . .	42.7	54.9	2.4	42.8	52.2	5.0	93	118
Cuba								
1953 . . .	29.7	65.1	5.2	43.0	53.5	3.5	86	112
1963 . . .	30.9	63.8	5.4	40.8	55.8	3.4	88	116
1973 . . .	30.6	63.2	6.2	38.0	57.7	4.4	91	117
1983 . . .	30.0	62.9	7.1	35.0	58.9	6.0	95	116

intensive study. In addition, a generalized model of urban-rural population changes is being constructed in order to enable the probable effects of any change in a basic assumption to be assessed.

The calculations carried out so far on the rather inflexible assuption of a constant rate of increase in the rural population have produced results which are not entirely consistent in some details. This is particularly true of the age groups most affected by rural-urban migration, such as adolescents and young adults. A further refinement of method is becoming necessary.

There are special reasons for focussing attention on changes in the population group aged about 15-19 years. Persons of these ages, if well informed and adequately trained, might constitute the main source of transitional changes in the structure of the labour force according to occupation, locality and level of skill. These same persons, if frustrated in their search for jobs and earnings of the kind which they had been led to expect, are liable to become an important source of social unrest. The existence of proper channels for persons about to enter the labour market may then be of crucial importance, in both a positive and a negative sense. Through training and guidance, therefore, it become possible not only to avert severe social discontent but to undertake more readily a constructive transformation of the economy.

IV. MANPOWER TRENDS AND CHARACTERISTICS

1. Percentage of manpower in agriculture

Statistics on the economically active population, based on censuses taken about 1950 in eighteen Latin American countries, Canada and the United States, have recently been presented in one publication.[59] To facilitate a comparison, it is useful to list the countries according to the degree of industralization.

But industralization may mean different things, depending on the point of view. From the standpoint of the national economy, for instance, the most significant index of industrialization is probably the percentage contribution made by manufacturing to the national income. According to the national statistics for 1958 for major countries in the region, as assembled by ECLA, Latin American countries might be listed by degrees of industrialization as follows:

	Percentage of national income contributed by the manufacturing sector (1958 data)
Brazil	27.1
Argentina	23.4
Mexico	19.8
Colombia	18.9
Chile	17.5
Peru	16.8
Ecuador	15.8[a]
Venezuela	10.8[b]

[a] Including artisan products.
[b] Excluding extraction and processing of petroleum.

In this list, the structure of manufacturing industry may be classified by degree of capital intensity, output per worker, or output per unit of capital. There may be different degrees of integration among branches of industry, or between these and the remainder of the national economy. Finally, a greater relative contribution made by industry may sometimes reflect the low average income produced by a large agricultural sector no less than the degree of development attained by industry as such.

From the standpoint of the present analysis, which is demographic, it would seem more relevant to differentiate between degrees of industrialization on the basis of manpower employment. But the percentage of manpower engaged in manufacturing is not in itself a good index, for the reasons already mentioned. Also some of the activities carried on in the services sector are industry-supporting. The percentage of manpower remaining in agriculture, on the other hand, seems to be a more positive measure, at least of the extent to which a country is not yet industrialized. The problem of manpower absorption, whether in industry or in services, is also more closely related to the percentage of manpower still retained by agriculture.

In accordance with this criterion, four groups of countries will be dealt with in this section. Countries with 60 per cent or more of their labour force (both sexes) engaged in agriculture will be in Group I, those with 50-60 per cent in Group II, those with 25-50 per cent in Group III, and Canada and the United States, where the percentage is even lower, in Group IV. The census data refer mainly to 1950 and, in the interim, the relative position of some countries — where industrialization has been more rapid than in others — may have changed. The countries and percentages of the labour force in agriculture are listed below. When the census did not relate to 1950, the census year is also indicated.

Haiti	71.6[a]	Paraguay	53.8
Honduras	71.4[a]	Ecuador	53.2
Guatemala	68.2	*Group II*[b]	*55.8*
Nicaragua	67.7	Panama	49.8
El Salvador	63.1	Cuba (1953)	41.5
Group I[b]	*68.4*	Venezuela	41.3
Brazil	59.6	Chile (1952)	30.1
Mexico	57.8	Argentina (1947)	25.2
Bolivia	57.1[a]	*Group III*[b]	*37.6*
Dominican Republic	56.5	Canada (1951)	19.0
Costa Rica	54.7	United States	11.6
Colombia (1951)	53.9	*Group IV*[b]	*15.8*

[a] Adjusted for excessive reporting of women as unpaid family helpers in agriculture (as explained further on).
[b] Unweighted average for group.

Actually, in the censuses of Haiti, Honduras and Bolivia, 83.2, 83.1 and 71.6 per cent of the reported economically active population appeared under agriculture. However, as distinct from other countries, large numbers of women were reported under agriculture, as unpaid family helpers, a practice which was not followed in other American censuses of 1950. A proportionate adjustment was made in the figures for these three countries to obtain more comparable percentages.

This listing of countries is maintained in some of the

[59] Inter-American Statistical Institute, *La estructura demográfica de las naciones americanas: Análisis estadístico-censal de los resultados obtenidos bajo el Programa del Censo de las Américas en 1950*, Vol. II, Nos. 1 and 2 (Washington, Pan American Union, June 1959).

analyses which follow. In each instance, an unweighted group average is calculated for purposes of ready comparison. Countries will be excluded from the grouping in those instances where the type of data to be compared was not found available.

2. Labour force as percentage of total population

The percentages of the total population, and of males and females of all ages, reported as economically active are shown in table 24.

Apart from minor sources of non-comparability,[60] the discrepancy in the reporting of economic activity of women in the cases of Haiti, Honduras and Bolivia is readily apparent. In Haiti, 30.1 per cent of all females had been reported in the status of unpaid family workers, and in Bolivia 28.5 per cent; though no equivalent information has been provided for Honduras, it is most probable that the non-comparability there stems from the same source. In no other American country did the proportion of females reported as unpaid family workers exceed even 2 per cent. Data for females and for total population for these three countries were accordingly excluded from the group averages.

[60] The minimum age for which economic activity was reported varied, among countries, from 10 to 14 years; unemployed persons seeking work and young persons seeking work for the first time were treated variously in the censuses; in some censuses, activity status was determined according to a fixed time period preceding the census date, and in others this was not done.

Table 24

PERCENTAGES OF TOTAL POPULATION, MALES AND FEMALES, OF ALL AGES, REPORTED AS ECONOMICALLY ACTIVE IN CENSUSES OF 1950 FOR EIGHTEEN LATIN AMERICAN REPUBLICS, CANADA AND THE UNITED STATES

Country	*Both sexes*	*Males*	*Females*
Haiti	56.4[a]	59.2	53.8[a]
Honduras	47.3[a]	52.8	41.8[a]
Guatemala	34.7	59.8	9.0
Nicaragua	31.2	54.5	8.6
El Salvador	35.2	59.3	11.6
Group I	*33.7*[b]	*57.1*	*9.7*[b]
Brazil	33.0	56.4	9.6
Mexico	32.4	56.8	8.7
Bolivia	50.3[a]	58.8	42.2[a]
Dominican Republic	38.7	64.9	12.3
Costa Rica	34.0	57.6	10.4
Colombia	33.4	54.7	12.4
Paraguay	32.9	51.9	14.7
Ecuador	38.6	55.6	21.7
Group II	*34.7*[c]	*57.1*	*12.8*[c]
Panama	35.2	55.3	14.2
Cuba	33.8	57.5	9.0
Venezuela	33.9	55.0	12.2
Chile	36.9	56.4	18.1
Argentina	40.6	63.4	16.6
Group III	*36.1*	*57.5*	*14.0*
Canada	37.9	58.4	16.9
United States	39.7	58.1	21.8
Group IV	*38.8*	*58.2*	*19.4*

[a] Not comparable in respect of women reported economically active.
[b] Average excluding Haiti and Honduras.
[c] Average excluding Bolivia.

As indicated by the group averages, the percentage of total population which is economically active rises with the degree of industrialization, from 33.7 per cent for the least industrialized countries, to 38.8 per cent for the highly industrialized countries. The rise in the percentage of economically active males is very slight (from 57.1 to 58.2). The percentage of economically active females rises substantially (from 9.7 to 19.4). These observations, however, obscure the effects of substantial differences in age composition. As noted in a previous chapter, the more industrialized countries are precisely the ones where birth rates are comparatively low and where the resulting age structure is economically more efficient. A different picture emerges when activity rates are considered by separate age groups.

As shown in table 25, male activity rates, age group by age group, are highest in the least industrialized countries, falling off systematically as the degree of industrialization increases. The decrease is most marked at ages 15-19 (from 87.7 to 51.6 per cent) and at ages 65 and over (from 80.9 to 40.0). But even at ages 35-44, where activity rates are invariably highest, there is some decrease, albeit slight (from 98.1 to 95.6 per cent).

This observation is contrary to the figures shown in table 24, but not in contradiction with them. Higher activity rates, age by age, compensate in part for the less favourable age composition of the least industrialized countries. The numerical compensation is incomplete for, despite higher specific rates, the over-all activity rates in the less industrialized countries nevertheless remain lower. The practical compensation is far less complete when it is considered that the productive contribution made by the additional youngest and oldest workers is, no doubt, below average, and that early commencement of economic activity precludes the achievement of adequate levels of education and, therefore, of high productive efficiency even in the "best" working ages.

How early does economic activity begin on an average? Comparable data are not readily secured, as there are variations in the lower age limit for which activities (if any) are reported, in the statistical treatment of persons doing occasional work while still attending school, or of persons seeking work for the first time. In Guatemala, 44.3 per cent of males aged 10-14 years were reported as economically active, as against 1.4 per cent in Canada. The group averages for this very early age group are: 28.2 per cent for group I, 26.4 for group II, 12.1 for Group III, and 2.0 for Group IV, but the comparison is probably vitiated by the variations in definition.

For females, the specific rates for Haiti and Bolivia cannot be compared, because, apparently, a majority of housewives, elsewhere not regarded as "economically active", were returned here as unpaid family helpers. These two countries, therefore, had to be omitted from the group averages. (See table 26.)

A comparison of group averages for women aged up to 54 years of age shows rises in specific activity rates fairly consistent with increases in industrialization; but, whereas the rises are considerable as between Groups I and II and Groups III and IV, the rise between Group II and Group III is hardly significant. At relatively advanced ages, women are economically most active in Group II and least active in Group IV.

There are also differences in the patterns of distribution in each group. In the less industrialized countries, young

Table 25

PERCENTAGES OF MALES IN EACH OF SEVERAL AGE GROUPS REPORTED AS ECONOMICALLY ACTIVE IN CENSUSES OF 1950, IN FOURTEEN LATIN AMERICAN REPUBLICS, CANADA AND THE UNITED STATES

Country	*Age group (years of age)*						
	15-19	*20-24*	*25-34*	*35-44*	*45-54*	*55-64*	*65 and over*
Haiti	83.6	95.6	98.6	99.0	98.6	97.1	87.2
Guatemala	90.6	96.6	97.8	97.9	97.2	94.7	73.1
El Salvador	88.9	95.6	97.1	97.5	95.4	95.4	82.4
Group I	*87.7*	*95.9*	*97.8*	*98.1*	*97.1*	*95.7*	*80.9*
Brazil	80.6	93.4	96.7	97.9	96.8	92.7	71.8
Bolivia	78.9	94.5	98.1	98.3	97.3	94.4	78.8
Costa Rica	91.1	96.7	98.4	98.6	97.6	94.8	74.0
Colombia	84.8	95.4	97.6	97.9	96.8	92.7	71.8
Paraguay	82.7	96.6	98.3	98.3	97.9	95.9	76.5
Ecuador	80.6	93.0	96.7	97.3	96.9	95.5	86.1
Group II	*83.1*	*94.9*	*97.6*	*98.0*	*97.2*	*94.3*	*76.5*
Panama	68.3	94.8	97.8	98.2	97.1	89.2	70.0
Cuba	73.2	90.6	94.1	95.3	94.7	89.6	68.8
Venezuela	79.3	93.2	95.7	96.1	95.0	90.5	71.9
Chile	72.2	93.3	97.1	97.2	93.7	88.2	70.2
Argentina	76.8	91.0	96.3	97.8	96.4	87.9	57.7
Group III	*74.0*	*92.6*	*96.2*	*96.9*	*95.4*	*89.1*	*67.7*
Canada	58.5	92.4	96.4	96.7	94.5	85.7	38.6
United States	44.6	81.9	92.1	94.5	92.0	83.4	41.5
Group IV	*51.6*	*87.2*	*94.2*	*95.6*	*93.2*	*84.6*	*40.0*

women[61] (aged 15-19) are most active and activity rates fall off fairly consistently with age. In the more industrialized countries, particularly in North America, the peak of female economic activity appears at ages 20-24. In the United States, a secondary peak appears at ages 35-44, presumably as some women, after having cared for their young children, are then able to resume remunerative work.

It is probable that in the countries of high birth

[61] For ages 10-14, the group averages are: Group I, 7.5; Group II, 7.6; Group III, 3.7; Group IV, 0.6. However, for reasons stated, the comparability of these figures is doubtful.

Table 26

PERCENTAGES OF FEMALES IN EACH OF SEVERAL AGE GROUPS REPORTED AS ECONOMICALLY ACTIVE IN CENSUSES OF 1950, IN FOURTEEN LATIN AMERICAN REPUBLICS, CANADA AND THE UNITED STATES

Country	*Age group (years)*						
	15-19	*20-24*	*25-34*	*35-44*	*45-54*	*55-64*	*65 and over*
Haiti[a]	81.2	85.9	85.5	86.6	86.3	81.5	59.0
Guatemala	15.8	14.9	13.1	13.9	13.5	12.3	8.7
El Salvador	20.7	20.9	17.4	17.3	15.9	13.5	10.6
Group I[b]	*18.2*	*17.9*	*15.2*	*15.6*	*14.7*	*12.9*	*9.6*
Brazil	23.4	18.9	12.8	10.9	10.1	8.7	5.4
Bolivia[a]	66.9	65.1	65.3	66.3	66.2	36.0	21.8
Costa Rica	22.5	22.6	17.2	15.7	13.3	9.1	5.6
Colombia	23.6	23.9	19.7	19.1	18.0	15.7	10.3
Paraguay	25.8	27.7	24.7	25.5	24.9	19.9	12.5
Ecuador	33.9	34.9	33.8	35.6	36.6	34.9	28.2
Group II[c]	*25.8*	*25.6*	*21.6*	*21.4*	*20.6*	*17.7*	*12.4*
Panama	23.4	29.6	25.2	24.6	20.8	14.8	8.3
Cuba	10.5	15.9	16.3	16.1	14.4	10.7	6.8
Venezuela	22.0	23.5	20.2	19.7	18.2	15.2	10.2
Chile	30.0	35.6	29.4	27.6	25.6	21.0	13.2
Argentina	36.7	31.3	22.3	21.6	19.5	14.2	7.3
Group III	*24.5*	*27.2*	*22.7*	*21.9*	*19.7*	*15.2*	*9.2*
Canada	37.9	46.9	24.2	21.8	20.4	14.5	5.1
United States	26.3	43.2	31.8	35.0	32.9	23.4	7.8
Group IV	*32.1*	*45.0*	*28.0*	*28.4*	*26.6*	*19.0*	*6.4*

[a] Data do not conform to comparable definition.
[b] Excluding Haiti.
[c] Excluding Bolivia.

rates family obligations prevent women from engaging in economic activities. Nevertheless, even in those Latin American countries whose birth rates are comparatively low and whose level of industrialization is comparatively advanced (e.g. Cuba, Argentina), female activity rates are still rather low, hence the noted discontinuity in the rises of group averages in Group III.

Generally speaking, in agrarian and high-fertility countries males begin work early in life and seldom retire before reaching advanced age while women are not to a great extent engaged in extradomestic economic activity. In Latin America these features are more pronounced although some degree of industrial advancement has been achieved and birth rates, in some countries, have fallen off. Thus, in a regional average, only 14 per cent of all Latin American females are economically active, in comparison with an average of 28 per cent in Asian countries. In Asia, 66 per cent of males aged 15-19, and 58 per cent of males aged 65 and over, are economically active; in the average of Latin America, the corresponding percentages are still as high as 77 per cent and 70 per cent, respectively.[62] Differences in definitions and census concepts may partly account for this, but it is probable also that a traditional pattern of economic activity has been preserved in Latin America which lags behind its present economic and social status.

Later commencement of male economic activity in technologically advanced countries corresponds on the whole to a more extended school education, including secondary and higher education for a significant number of young persons. Earlier cessation of economic activity of males in such countries is conditioned by competitive employment practices, retirement funds, and urban and industrial conditions which impede the economic activity of older men. However, while spending, on an average, fewer years of their life-span in actual employment, better educated workers undoubtedly are more efficient.

The higher level of female economic activity in industrial countries is due in part to the greater opportunity for the productive employment of women in towns and in industries, partly to greater social acceptability of their working status, and partly to easier domestic conditions, making smaller claims on the time of women in their household occupations. This greater activity of women more than compensates for the somewhat reduced activity of men. In some instances, it actually helps to defray the cost of a more complete education of children and young persons.

It is to be thought that the activity patterns of Latin America are moving gradually in such a direction. In particular, the majority of rural migrants of cities are women, hence their activity rates are no doubt rising. This makes it probable that the economically active population — men and women combined — is growing relatively more rapidly in many or most Latin American countries than is the total population. How much faster it is growing, or at what rates, would have to be calculated in detailed projections, especially when new census data become available.

If the growth of the labour force is indeed more rapid than that of the total population, the following effects require consideration:

(*a*) employment opportunities will be needed at a rate that is higher than that of population increase;

(*b*) the dependency ratio, i.e., the number of dependents per active person, will tend to decline;

(*c*) fewer women will stay at home to give the needed care to large numbers of small children although, in the circumstances, an increased motivation to limit family size might eventually show its effect;

(*d*) the ratio of women to men, in the economically active population, may increase rather appreciably.

[62] These figures were taken from a study being prepared by the Population Branch, United Nations Bureau of Social Affairs.

3. Educational level

Of 97 million persons in Latin America aged 15 years and over in 1950, between 40 and 42 million were estimated as still illiterate.[63] While progress in literacy comes mainly through the formal education of children and young persons, it is most likely that the absolute number of illiterates is still increasing. For instance, in Brazil there were 10.4 million literate and 13.3 million illiterate adults in 1940, as against 14.9 million literate and 15.2 million illiterate adults in 1950. In countries with rapid population growth, an absolute increase in the number of illiterates continues for some time despite progress in the average literacy level.

The 1950 level of adult illiteracy in Latin America, about 42-43 per cent, can be compared with 60-65 per cent in Asia, but only 7-9 per cent in Europe.[64] Relative to its present status in industrialization and urbanization, Latin America's illiteracy rate is rather high. There is also a correlation between percentages of adult illiterates and manpower engaged in agriculture. (See table 27.)

[63] UNESCO, *World Survey of Education*, Vol. II ("Primary education"), 1958.

[64] *Ibid.*

Table 27

PERCENTAGE OF MANPOWER ENGAGED IN AGRICULTURE AND OF ILLITERATES AMONG THOSE AGED 15 YEARS AND OVER, 1950

Country	*Per cent in agriculture*	*Per cent illiterate*
Haiti	71.6[a]	89
Honduras	71.4[a]	65[b]
Guatemala	68.2	71
Nicaragua	67.7	62
El Salvador	63.1	61
Group I	*68.4*	*70*
Brazil	59.6	51
Mexico	57.8	43[c]
Bolivia	57.1[a]	68
Dominican Republic	56.5	57
Costa Rica	54.7	21
Colombia	53.9	38
Paraguay	53.8	34
Ecuador	53.2	44
Group II	*55.8*	*44*
Panama	49.8	30
Cuba	41.5	22
Venezuela	41.3	48
Chile	30.1	20
Argentina	25.2	14[d]
Group III	*37.6*	*27*

[a] Estimate adjusted for excessive reporting of female unpaid family helpers.
[b] Ages: 10 and over.
[c] Ages: 6 and over.
[d] Ages: 14 and over.

Progress in literacy has not been uniform in the course of time, as witnessed by percentage literacy rates specific for age groups. In 1953, for instance, only 18 per cent of the population in the 25-29 year age group in Cuba was illiterate, as against 22 per cent for the 15-19 year age group, indicating that there had been a reversal in educational progress.

Literacy, i.e., the mere ability to read and write, is closely linked to school enrolment. School enrolment ratios, or the percentage of children aged 5-14 years enrolled in elementary school, have been assembled by UNESCO, showing considerable progress (see table 28).[65] While elementary school enrolment is not the only road to literacy — adults can also learn to read and write through special courses, or on their own initiative — it is decisive for the general literacy of the population. Progress is undoubtedly being made in this direction, although it is not uniform.

The school systems of many countries, however, are still largely ineffectual in another respect. Often only a fraction of those initially enrolled in the first grade eventually complete their elementary schooling. Even smaller numbers continue at secondary or vocational schools. Desertions during the school year, failures to move from one grade to the next, complete abandonment of further education, and the lack of rural schools offering more than, say, two or three elementary grades, are among the chief causes of wastage. And despite the marked increases in gross enrolment no conspicuous progress has been made in any of these respects.[66]

For instance, among those who have completed at least one school grade, median numbers of school grades completed can be calculated from census data in respect of various age groups. If this ratio is higher among young persons than among an older generation, then the school progress, on the part of those enrolled, has improved; otherwise it has not. According to certain data,[67] such improvement as has been registered over the long term has been negligible. For those in the 15-24 year age group in 1950 who had had at least one grade of schooling, the medium number of grades completed was 2.5 in El Salvador, 2.7 in Nicaragua, 3.1 in Costa Rica, and 3.2 in Venezuela; the corresponding figures for those aged 65 and over — who had been in school before the end of the last century — were 2.9, 2.8, 2.8 and 3.0, respectively.

In the light of these observations, two alternatives in the use of the inevitably limited school budgets may be considered. A budget can be spent on a concentrated effort to make school enrolment universally applicable, or on a concentrated effort to improve the educational progress of those already enrolled. According to available records, school enrolment in most countries has become more nearly universal, while the average progress of those enrolled has improved little if at all. It is open to question whether this type of school policy is the most conducive

[65] *Ibid.*, up to 1954. Ratios for 1956-59 have been calculated by ECLA, by relating data supplied by UNESCO to corresponding population estimates. Since the ratios refer to a 10-year age group whereas the official school curriculum is generally one of 5 to 7 years, the ratios should, ideally, come to approximately from 50 to 70 per cent, or somewhat more to allow for repetition of grade by some pupils.

[66] This problem was studied intensively at the Santiago Demographic Centre (CELADE) for the purpose of preparing a report to the UNESCO/ECLA/OAS Conference on Education and Economic and Social Development to be held at Santiago in March 1962.

[67] G. Zakrzewski. *"Características educacionales de la población en el censo de las Américas de 1950"*, Inter-American Training Centre for Economic and Financial Studies (CIEF), Santiago, Chile, 15 March - 15 June 1958, CLEE/Doc.ref.21.

Table 28

ELEMENTARY SCHOOL ENROLMENT RATIOS PER 100 PERSONS AGED 5-14 YEARS IN SIXTEEN LATIN AMERICAN COUNTRIES AND AVERAGE ANNUAL GAINS IN THE RATIO

Country	*1930-34*	*1950-54*	*1956-59*	*Average annual gain*
Haiti	12[a]	20[b]	24	0.8
Honduras	13[c]	27	36	0.9
Guatemala	19[d]	23	28	0.4
El Salvador	14[e]	33	51	1.5
Group I	*14[f]*	*26*	*35*	*0.9*
Brazil	22[e]	34[g]	44	0.9
Mexico	43	47	50	0.3
Bolivia	16[d]	28[h]	38	0.9
Costa Rica	40	51	64	0.9
Colombia	26[d]	30	39	0.5
Paraguay	43	57	72	1.1
Ecuador	24	42[g]	49	1.0
Group II	*31[i]*	*41*	*51*	*0.8*
Panama	38	56	58	0.8
Cuba	42[j]	43[g]	58	0.7
Venezuela	28[k]	43	47	0.7
Chile	50	56	63	0.5
Argentina	53	68	69	0.6
Group III	*42[l]*	*53*	*59*	*0.7*

[a] 1941-43.
[b] 1952-54.
[c] 1932-34.
[d] 1934.
[e] 1931-33.
[f] Average date: 1935.
[g] 1950-53.
[h] 1950-52.
[i] Average date: 1933.
[j] 1944.
[k] 1940-44.
[l] Average date: 1936.

o securing a supply of manpower with the qualifications urgently needed for economic and social development.

It is a commonplace that Latin American manpower is especially deficient in persons of at least intermediate levels of skill and responsibility. While the supply of such personnel is short, the available skill of highly educated persons (professionals, technicians) cannot be advantageously used. Nor can a large labour force of low levels of skill and education then be advantageously employed and supervised. If school policies continue to follow the past trend, there will be an increase in the supply of barely literate manpower, but the proportion of those with a substantially better education will not be noticeably larger.

4. Socio-economic characteristics of the labour force

The labour force is classified in census data by branch of activity, personal occupation and occupational position (employer, wage-earner, etc.), as well as by cross-tabulation among these socio-economic characteristics.

Additional cross-classifications of some economic characteristic — especially occupations — with educational attainment would be most useful. The educational deficiencies of the labour force in various categories, as well as the educational needs to be met in accordance with needs for labour in various categories, might then be more directly inferred. Manpower and educational projections might then be compared and mutually reconciled, permitting a convergent approach of employment policy with educational policy. Unfortunately, data permitting linkage between educational and manpower characteristics are scarce.

The occupational, activity and occupational-status classifications themselves throw no direct light on employment or productivity levels in the particular jobs. While most economically active persons are identified in the census under the categories provided, it is well known that the activities of numerous persons are intermittent and of low productivity. Unemployed persons seeking work can be readily defined in the technologically advanced countries where most work is performed on a labour-contract basis, and when such work is lacking the fact is quite obvious. In countries where intermittent activity is widespread and where numerous persons try to earn a living, however inadequately, by personal efforts outside the contract system, the concept of unemployment is rather vague. Nor can there be a clear-cut definition of under-employment, except in relation to de-

Table 29

PERCENTAGES OF ECONOMICALLY ACTIVE POPULATION ENGAGED IN EACH OF THREE MAIN BRANCHES OF ACTIVITY IN CENSUSES OF 1950 FOR EIGHTEEN REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

Country	*Primary*	*Secondary*	*Tertiary*	*100 time ratio (2)/(1)*	*10 times ratio (3)/(2)*
	(1)	(2)	(3)	(4)	(5)
Haiti[a]	83.2	5.6	11.2	7	20
Honduras[a]	83.6	6.9	9.5	8	14
Guatemala	68.4	14.3	17.3	21	12
Nicaragua	68.7	14.2	17.1	21	12
El Salvador	63.4	14.4	22.2	23	15
Group I[a]	*73.5*	*11.1*	*15.4*	*15*	*14*
Brazil	60.3	13.5	26.2	22	19
Mexico	59.0	14.7	26.3	25	18
Bolivia[a]	74.8	12.9	22.3	17	17
Dominican Republic	56.5	9.5[b]	34.0[b]	17[b]	36[b]
Costa Rica	54.9	15.9	29.2	29	18
Colombia	55.5	16.1	28.4	29	18
Paraguay	53.9	18.7	27.4	35	15
Ecuador	53.6	21.7	24.7	40	11
Group II[a c]	*58.9*	*16.2*	*24.9*	*28*	*15*
Panama	49.9	9.8[d]	40.7[d]	20[d]	42[d]
Cuba	42.0	20.3	37.7	48	19
Venezuela	43.9	15.7[e]	40.2[e]	36[e]	26[e]
Chile	34.8	24.7	40.5	71	16
Argentina	25.7	27.8	46.5	108	17
Group III[f]	*34.2*	*24.3*	*41.6*	*71*	*17*
Canada	21.0	33.5	45.5	160	14
United States	13.1	32.9	54.0	251	16
Group IV	*17.0*	*33.2*	*49.8*	*195*	*15*

[a] Data for Haiti, Honduras and Bolivia, included in the group averages, are affected by relatively excessive reporting of women in agriculture.
[b] Included in "tertiary" are 19.2 per cent reported in unspecified activities; probably, many of these were of a "secondary" type.
[c] Excluding data for the Dominican Republic.
[d] Included in "tertiary" are 16.1 per cent reported in unspecified activities; probably, many of these were of a "secondary" type.
[e] Included in "tertiary" are 8.5 per cent reported in unspecified activities; probably, many of these were of a "secondary" type.
[f] Excluding data for Panama and Venezuela.

sirable numbers of hours worked, or some minimum of income earned. For the most part, there is also a dearth of this type of statistics.

In the analyses which follow, characteristics of manpower are examined irrespective of sex. This has the disadvantage that in Bolivia, Haiti and Honduras incomparably larger numbers of women are included, most of them rural housewives.

The classification by branch of activity is simplified when only three sectors are distinguished, namely:

(*a*) Primary activities (agriculture, forestry, hunting and fishing, mining and quarrying);
(*b*) Secondary activities (building, manufacturing industries, and public utilities);
(*c*) Tertiary activities (commerce, transport, storage and communications and services).

Activities of an unspecified character or not otherwise defined will be included among the tertiary, since they are probably mainly of that type. This has been done in table 29, in which all the data are assembled from the same source.[68]

Since most of the primary activities are agricultural, the percentage in primary activities very closely follows the order of countries adopted. Corresponding to the decrease in primary activities, there is a very systematic increase in secondary activities, except in countries with high percentages under unspecified activities (the Dominican Republic, Panama and Venezuela) many of which are no doubt of a secondary type. Little systematic change has taken place in the ratio of tertiary to secondary activities. On an average, this ratio is equal in moderately industrialized countries (Group II) and highly industrialized countries (Group IV), but it is higher in Group III. The comparability of the data for the United States is also perhaps rather doubtful, as 7.8 per cent of the labour force was recorded under unspecified activities there. With more nearly comparable criteria, the ratio of tertiary to secondary activities may be lower in the United States than in some of the less industrialized countries of Latin America. It certainly is lower than in Brazil, for example, where the category of unspecified activities was only 0.3 per cent.

Roughly speaking, it may be said that, throughout the American continent, there are three service workers to every two industrial workers, irrespective of the degree of industrialization.

Much has been made of the schemes of Clark and others[69] in which the rise of service industries in relation to general industrialization is well documented. In fact, the more complex the industries, the larger their scope and the more intricate their inter-relations, the greater the need for co-ordinating services such as transport, marketing, banking, insurance, etc. Furthermore, a rising standard of living can absorb additional consumer service. The comparatively constant proportions between manufacturing and services observed in the Americas strongly suggest that many of the services in the less industrialized countries are neither industry-supporting nor in-

[68] See footnote 89.

[69] Colin Clark, *The conditions of economic progress*, London, 1940; Jean Fourastie, *Le grand espoir du XXème siècle*, Paris, 1949.

Table 30

PERCENTAGES OF ECONOMICALLY ACTIVE POPULATION BY SELECTED TYPES OF OCCUPATIONS IN CENSUSES OF 1950 FOR FOURTEEN REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

Country	*Professionals and technicians*	*Directors, managers and administrators*	*Office personnel*	*Sales personnel*	*Workers engaged in means of transportation*	*Service workers*
Honduras	0.9	0.6	1.5	9.3[a]	0.9	3.0
Guatemala	1.6	1.5	1.8	3.3	1.2	6.3
Nicaragua	2.1	2.9	2.2	1.2	1.3	7.6
El Salvador	1.7	2.8	2.4	2.0	1.2	8.8
Group I	*1.6*	*2.0*	*2.0*	*2.2*[b]	*1.2*	*6.4*
Brazil	2.0	3.6	4.1	3.2	2.3	5.8
Bolivia	1.5	2.7	1.6	2.5	0.9	1.7[a]
Costa Rica	3.4	3.5	4.1	3.8	1.7	9.8
Colombia	2.3	5.7	2.4	1.7	2.0	10.6
Paraguay	2.4	4.3	3.1	2.2	1.8	8.1
Ecuador	1.9	3.8	2.2	2.3	1.2	6.9
Group II	*2.2*	*4.0*	*2.9*	*2.6*	*2.4*	*8.2*[c]
Panama	3.7	2.8	4.0	1.8	2.8	10.5
Cuba	4.4	4.7	7.2	6.3	4.4	8.1
Venezuela	3.3	5.9	3.6	2.7	3.8	9.4
Chile	4.4	6.5	7.6	2.6	2.5	14.2
Group III	*4.0*	*5.0*	*5.6*	*3.4*	*3.4*	*10.6*
Canada	7.1	7.7	12.0	6.4	6.5	9.8
United States	8.2	8.4	11.5	6.5	3.4	10.6
Group IV	*7.6*	*8.0*	*11.8*	*6.4*	*5.0*	*10.2*

[a] Apparently not comparably reported.
[b] Excluding data for Honduras.
[c] Excluding data for Bolivia.

licative of a high standard of living. Much of the Latin American under-employment is no doubt to be found here.

The occupational classification under which comparable lata have been assembled obscures the fact that levels of kill or responsibility vary enormously. Some categories, nevertheless, are indicative of conditions under varying legrees of industrialization. The selected categories, as percentages of the labour force, are brought together in able 30.

Aside from probable sources of non-comparability, all he six categories examined show a rise as the dependence on agriculture decreases. As can be gleaned from table 29, "industrialization", as measured by percentages of econdary employments, in comparison with Group I, is nalf as much again in Group II, twice as much in Group II, and three times as much in Group IV. The rise in professionals and technicians, from 1.6 per cent in Group to 7.6 per cent in Group IV, is more than proportionate, is is also the increase in managerial staff. The expansion of office personnel is prodigious as industrialization increases, and the increase in transport workers is very considerable.

Unfortunately, not much is known quantitatively about the composition of the segment described as "service workers". The expansion of this category, from 6.4 per cent in Group I to 10.6 in Group III, followed by a decrease to 10.2 in Group IV, is far less than proportionate with the rise in industrialization. Even in Colombia, this segment is as large as in the United States, although, as measured in table 30, the United States is twice as industrialized. Again it appears that this is a category which, in Latin America, is over-stocked by persons who have difficulty in finding more regular and remunerative employment. In passing, it is worthy of note that the occupational "service" sector accounts for over 30 per cent of the female labour force in at least these countries: Chile, Colombia, Costa Rica, Cuba, El Salvador, Guatemala and Venezuela, and possibly in some others where this *datum* was not found; it is known that many Latin American women engage in domestic services.

The composition of the labour force by occupational status is summarized in table 31. As evidenced by footnotes, there are several sources of non-comparability. The conclusions are accordingly uncertain.

There are variations in the reporting of employers, possibly as some employed administrators, in their turn, engage wage and salary workers at the lower levels. Em-

Table 31

ERCENTAGES OF ECONOMICALLY ACTIVE POPULATION UNDER EACH OCCUPATIONAL STATUS IN CENSUSES OF 1950 FOR SIXTEEN REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

	Labour contract status			*Other status*		*Ratios*	
Country	*Employers*	*Wage and salary workers*	*(1)+(2)*	*Self-employed*	*Unpaid family helpers*	*(2)/(1)*	*(5)/(4)*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Iaiti	1.5	12.3	13.8	42.5	41.0[a]	8	0.96[a]
uatemala	2.7	40.0	42.7	38.9	18.4	15	0.47
Nicaragua	13.5	55.0	68.5	25.0	6.5	4	0.25
l Salvador	2.8	55.5	58.3	25.7	12.9	20	0.50
Group I[b]	*6.3*	*50.2*	*56.5*	*29.9*	*12.6*	*8*	*0.42*
razil	3.6	50.0	53.6	28.1	16.8	14	0.60
Iexico	0.8[c]	45.9	46.7	40.7	11.7	57[c]	0.29
olivia	2.3	30.8	33.1	14.2	51.9[a]	13	3.65[a]
ominican Republic	1.4	27.5	28.9	38.4	13.9	20	0.36
osta Rica	10.1	66.5	76.6	10.9	9.5	7	0.87
olombia	10.3	52.5	62.8	23.7	8.3	5	0.35
araguay	4.9	33.0	37.9	45.4	13.9	7	0.31
Group II[d]	*6.1[e]*	*45.9[e]*	*51.1*	*31.1*	*12.4*	*8[e]*	*0.40*
anama	1.8	37.7	39.5	36.5	15.1	21	0.41
uba	...	...	72.1	24.0	3.9	...	0.14
enezuela	3.8	54.0	57.8	27.3	8.2	14	0.30
hile	2.1	72.5	74.6	21.6	2.3	35	0.11
rgentina	15.7[c]	70.2	85.9	6.8	2.8	4[c]	0.41
Group III	*2.6[f]*	*54.7[f]*	*66.0*	*23.2*	*6.5*	*21[f]*	*0.28*
anada	4.3	77.1	81.4	15.1	3.2	18	0.21
nited States	...	...	75.8	16.0	1.9	...	0.12
Group IV	*4.3[g]*	*77.1[g]*	*78.6*	*15.6*	*2.6*	*18[g]*	0.17

Relatively excessive number of female family helpers were reported.
Excluding data for Haiti.
Number of reported employers appears non-comparable.
Excluding data for Bolivia.
Excluding data for Mexico as well as Bolivia.
Excluding data for Cuba and Argentina.
Canada only.

Table 32

PERCENTAGES OF SELF-EMPLOYED AMONG THOSE ECONOMICALLY ACTIVE IN EACH MAJOR BRANCH OF ACTIVITIES, ACCORDING TO CENSUSES OF 1950 FOR TWELVE REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

Country	*Categories*							
	Agriculture, forestry, hunting and fishing	*Mining and quarrying*	*Manufacturing industries*	*Building*	*Commerce*	*Transport, storage and communications*	*Services*	*Activities not well defined*
Haiti	44.1	24.4	47.7	20.6	77.3	18.1	10.2	1.0
El Salvador	28.1	8.6	30.8	6.3	56.1	11.7	6.0	7.7
Group I	*36.1*	*16.5*	*39.2*	*13.4*	*66.7*	*14.9*	*8.1*	*4.4*
Brazil	34.1	...	...	...	33.2	15.3	18.7	16.7
Mexico	52.3	5.1	26.2	10.5	63.6	11.8	12.1	7.0
Bolivia	9.7	2.5	36.6	5.1	58.2	10.6	4.5	4.6
Costa Rica	9.1	25.7	19.9	3.4	32.2	8.6	4.8	...
Colombia	24.1	26.3	32.9	11.0	50.2	14.9	8.3	35.4
Group II	*25.9*	*14.9*[a]	*28.9*[a]	*7.5*[a]	*47.5*	*12.2*	*9.7*	*15.9*[b]
Panama	59.9	30.1	33.1	19.8	28.4	26.9	7.4	16.2
Cuba	29.0	7.0	14.8	17.8	41.5	19.6	14.7	6.3
Venezuela	42.3	4.2	27.4	13.2	46.8	30.2	3.5	6.3
Chile	24.2	3.3	27.2	12.5	45.5	14.9	11.9	12.0
Argentina	4.0	0.8	10.7	4.1	11.3	4.7	6.1	2.4
Group III	*31.9*	*9.1*	*22.6*	*13.5*	*34.7*	*19.3*	*8.7*	*8.6*
Canada	52.8	1.0	2.7	11.1	10.4	7.0	6.9	2.4
United States	62.3	3.8	4.4	18.9	19.2	5.4	10.5	2.0
Group IV	*57.6*	*2.4*	*3.6*	*15.0*	*14.8*	*6.2*	*8.7*	*2.2*

[a] Average excluding Brazil.
[b] Average excluding Costa Rica.

ployers, wage and salary labour taken jointly constitute the occupations carried out on the basis of labour contracts. This socio-economic segment comprises about one-half of the labour force in less industrialized countries, about two-thirds in countries of Group III, and three-quarters or more in North America. However, conditions vary considerably among particular countries. At any rate, persons working outside the system of contracts constitute a larger proportion in the less industrial countries than in those where industrialization is far advanced.

The ratio of wage and salary labour to employers might provide an index of the average size of cash-contract establishments, if data were comparable. It is probable that the size of establishments tends to increase with industrialization.

The ratio of family helpers to self-employed tends to decrease with industrialization. Industry is a source of employment for family members who would otherwise be helping out in the enterprise of the family head. In industrialized countries where birth rates are lower, families are also smaller and there are fewer potential family helpers.

There are some limits to under-employment within the labour contract system: a labourer would not indefinitely be maintained on a payroll unless there is a minimum amount of productive work for him to do. Under-employment can be more frequent among some of the self-employed and unpaid family assistants. Conditions vary, of course, as do the precise criteria applied in national censuses. Nevertheless, it is of interest to compare the

Table 33

UNWEIGHTED GROUP AVERAGES OF PERCENTAGES OF SELF-EMPLOYED AMONG THOSE ECONOMICALLY ACTIVE IN EACH MAJOR BRANCH OF ACTIVITY IN FOUR GROUPS OF COUNTRIES

Activities	*Group I*[a]	*Group II*[b]	*Group III*[c]	*Group IV*[d]
Agriculture, etc.	36.1	25.9	31.9	57.6
Mining, etc.	16.5	14.9	9.1	2.4
Manufacturing	39.2	28.9	22.6	3.6
Building	13.4	7.5	13.5	15.0
Commerce	66.7	47.5	34.7	14.8
Transport, etc.	14.9	12.2	19.3	6.2
Services	8.1	9.7	8.7	8.7
Unspecified	4.4	15.9	8.6	2.2

[a] Haiti, Honduras, Guatemala, Nicaragua and El Salvador.
[b] Brazil, Mexico, Bolivia, Dominican Republic, Costa Rica, Colombia, Paraguay and Ecuador.
[c] Panama, Cuba, Venezuela, Chile and Argentina.
[d] Canada and United States.

percentage of self-employed among the labour force engaged in each major branch of activity, as is done in table 32. For more efficient summarization, the group averages are brought together in table 33.

Comparing the averages of Group I with those of Group IV, rises in percentages of the self-employed, with rising industrialization, are noted only in the case of agriculture, building and services. Only in agriculture is the rise pronounced, but here the definition of "self-employed" may vary widely with systems of land tenure, types of crops and terrain. The population census, of course, cannot describe the diverse structures of agriculture in all their complexity. In the case of "services", it is to be noted that female domestic servants, while not economically very productive, nevertheless are salary earners; some highly skilled professionals, e.g. doctors and lawyers, on the other hand, are self-employed, as are also some barbers, bootblacks, etc.

In all other categories, the percentages of self-employed decline with rising industrialization, although not regularly in each instance. In the case of mining, the decline is continuous; here, the cash-contract system does not become all-embracing until the degree of industrialization is quite high; much mining, in some countries, is probably still done with small capital equipment. In manufacturing, the self-employed generally represent the artisan group although in highly industrialized countries some repair services are also carried on by workers on their own account; it is worthy of note that this decline is rather slowed down from Group II to Group III, but precipitous between Group III and Group IV; evidently, in some Latin American countries, despite considerable industrialization, many manufacturing jobs are still those of small shops. The same observation can be made for commerce; the very high ratio of self-employed in less industrialized countries, is no doubt a significant index of under-employment. In transport, the situation is ambiguous: the percentage of self-employed rather tends to rise with industrialization in Latin America, being highest in Group III, in fact very high as compared with North America. As for unspecified activities, the very fact that they could not be fully determined by the census makes them suspect, but data are scarcely comparable, as some censuses have succeeded better than others in allocating this miscellaneous group among more definite headings.

Somewhat analogous findings are obtained from cross-classifications of manpower by occupation and occupational status. Presentation of the data is omitted to save space. However, there is much to be said for examination of the cross-classification of occupation by branch of industry, at least where technical and managerial personnel is concerned. Commenting on table 34, steep rises in the proportion of technical personnel may be noted in every branch of activity as the degree of industrialization advances. Agriculture in highly industrialized countries is 25 times as well provided with technicians as it is in those countries which still mainly depend on agriculture. Manufacturing is ten times as well staffed with technical persons in the industrial countries. Fairly industrialized countries in Group III appear to be relatively advanced in the technical staffing of mines, but relatively backward as regards technicians in transport and in the "services"; in these latter respects, they seem hardly better staffed than the less industrial countries of Group II.

As shown in table 35, managerial and administrative personnel increases regularly and steeply in nearly every branch of activity as the degree of industrialization ad-

Table 34

PROFESSIONALS AND TECHNICIANS PER 1 000 PERSONS ECONOMICALLY ENGAGED IN EACH MAJOR BRANCH OF ACTIVITY, IN THIRTEEN REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

Country	*Agriculture, forestry, hunting and fishing*	*Mining and quarrying*	*Manufacturing industries*	*Building*	*Commerce*	*Transport, storage and comunications*	*Services*
Haiti	0.1	4	13	2	3	1	97
Guatemala	0.6	17	8	3	8	13	140
Nicaragua	0.1	11	12	7	7	17	182
El Salvador	0.1	12	11	3	14	5	131
Group I	*0.2*	*11*	*11*	*4*	*6*	*9*	*138*
Brazil	0.1[a]	...	...	12[b]	15	4	110[c]
Mexico	0.2	31	25	18	5	10	191
Costa Rica	0.9	5	12	6	8	16	209
Colombia	0.1	13	8	13	20	10	120
Ecuador	0.4	9	5	3	7	12	148
Group II	*0.4*	*14*[d]	*12*[d]	*10*	*11*	*10*	*156*
Panama	1.0	17	28	19	14	10	222
Cuba	1.2	16	12	15	14	4	189
Venezuela	0.6	75	26	25	10	10	126
Chile	4.1	24	21	23	22	16	140
Group III	*1.7*	*33*	*22*	*20*	*15*	*10*	*169*
Canada	3.5	52	16	34	23	17	263
United States	6.6	37	38	46	22	26	303
Group IV	*5.0*	*44*	*27*	*40*	*22*	*22*	*283*

Includes mining and quarrying.
Includes building.
Includes public utilities.
Not including Brazil.

vances, with the notable exception of commerce, where the progression is in the reverse order. Again, Group III, for its level of industrialization, appears relatively backward with respect to transport and "services". Commerce, as has been noted, may conceal many under-employed persons, including the "managers" of small, or one-man, businesses; here also, Group III still seems relatively over-staffed, as compared with the far more efficient organization of commerce in North America.

5. Trends in the sectoral composition of manpower

Population censuses with comparable criteria are virtually indispensable for the study of detailed manpower trends. In many Latin American countries, the 1950 censuses are the first in which modern economic definitions were applied. The data of one census do not establish a trend although in some instances internal structural features permit the calculation of a manpower projection.

Some segments of manpower have also been recorded at other dates, in occasional censuses or surveys of industrial, commercial or agricultural establishments. But the surveys of establishments are not comprehensive and inevitably fail to account for large segments of manpower not currently working within the statistical units so identified. Estimates for residual manpower segments can be made consistent with population trends, output, average output per worker, or other criteria that have a relative inertia. With checks and consistency tests, estimates of this type can attain a certain degree of plausibility. This kind of effort was the basis of an ECLA study on manpower trends in the period of 1945-55.[70] However, as more time passes since the latest censuses, such estimates become increasingly unreliable. While new population census data are expected to be available soon, systematic projections from the estimated 1945-1955 series would be rather unwarranted by then.

In the study referred to, it was estimated that, from 1945 to 1955, the population of the twenty republics increased from 138 to 174 million, i.e., by 27 per cent. At the same time, manpower increased from 47 to 60 million, or by 28 per cent, at a rate slightly higher than that of the total population.

The population dependent on agriculture, 79 million in 1945 and 90 million in 1955, increased by 14 per cent; and the agricultural labour force, 26 million and 30 million in those two years, increased by 15 per cent. These increases were very unevenly distributed among countries, negligible in Cuba, Uruguay and Chile, but exceeding 25 per cent in Ecuador, Costa Rica, Nicaragua, Paraguay and Guatemala. In the twenty republics combined, 56 per cent of the labour force was agricultural in 1945, and 51 per cent in 1955. It is most probable that since 1955 agriculture has come to engage less than one-half of the available manpower supply and that Latin America as a whole has ceased to be a "predominantly agrarian region".

The slow absorption of added manpower in agriculture reflected itself in the growth of secondary and tertiary occupations. When mining is excluded,[71] the secondary labour force (manufacturing, building) is calculated at 8 million in 1945 and 11 million in 1955, an increase of 38 per cent; the tertiary labour force (commerce, transport, services, and unspecified activities) — 12 million in 1945 and 18 million in 1955 — shows an increase of 49 per cent. The ratio of tertiary to secondary oc-

[70] See "Changes in employment structure in Latin America, 1945-1955", *Economic Bulletin for Latin America*, Vol. II, No. 1, February 1957.

[71] Mining accounted for slightly over half a million jobs, a figure that apparently changed little over the ten-year period.

Table 35

MANAGERIAL AND ADMINISTRATIVE PERSONNEL PER 1 000 PERSONS ECONOMICALLY ENGAGED IN EACH MAJOR BRANCH OF ACTIVITY, IN THIRTEEN REPUBLICS OF LATIN AMERICA, CANADA AND THE UNITED STATES

Country	*Agriculture, forestry, hunting and fishing*	*Mining and quarrying*	*Manufacturing industries*	*Building*	*Commerce*	*Transport, storage and comunications*	*Services*
Guatemala	0.3	15	10	5	209	20	20
Nicaragua	0.1	4	15	2	563	12	16
El Salvador	0.0	16	1	4	478	4	8
Group I	*0.1*	*12*	*9*	*4*	*417*	*12*	*15*
Brazil	3.2[a]	...	...	44[b]	333	38	36[c]
Costa Rica	0.3	27	10	23	334	25	33
Colombia	2.6	17	15	24	493	43	66
Ecuador	0.2	21	25	8	506	38	27
Group II	*1.0*	*22[d]*	*17[d]*	*18*	*416*	*36*	*40*
Panama	0.5	19	6	27	257	31	39
Cuba	2.6	49	28	23	278	25	35
Venezuela	0.9	20	9	13	613	50	60
Chile	1.8	11	57	50	404	24	33
Group III	*1.4*	*25*	*25*	*28*	*388*	*32*	*42*
Canada	5.2	27	65	53	232	41	81
United States	0.9	41	86	53	225	74	62
Group IV	*3.0*	*34*	*76*	*53*	*228*	*58*	*72*

[a] Includes mining and quarrying.
[b] Includes building.
[c] Includes public utilities.
[d] Not including Brazil.

cupations, 15 to 10 in 1945, rose to at least 16 to 10 by 1955.

Two periods could be distinguished. During 1945-1950 secondary occupations increased by 21 per cent and tertiary employment by 22 per cent; during 1950-55 secondary occupations increased by only 14 per cent, and tertiary by as much as 27 per cent. A slow-down in the expansion of industrial jobs, it appears, caused an accelerated accumulation of manpower in services. The growth of the service sector, then, was disproportionate with industrial growth.

Actually, less than one-half of the manufacturings jobs in 1950 were estimated to be of the factory type[72]. While factory employment increased rapidly in some countries — at annual rates approaching 9 or 10 per cent in Mexico and Venezuela there was a shrinkage, relative if not also alsolute, in the production of artisan and cottage industries.

The tentative conclusion was that — despite rises in industrial output — the slow growth of employment in agriculture, and the limited group of factory-type jobs, may have resulted in an accelerated accumulation of manpower in positions where under-employment and low productivity are known to be prevalent.

Whether trends of this type have persisted, and whether jobs at lowest levels of productivity are indeed growing at a disturbingly high rate, remain to be confirmed by new population censuses. The implications for industrial policy might be serious. Care would have to be taken, for instance, that industrial growth remained consistent with an adequate increase in the number of jobs where levels of employment and productivity are at least tolerable.

Because of possible implications, the use of new census data for the calculation of manpower projections can acquire much importance. The new censuses, furthermore, might provide sampling frameworks for subsequent manpower surveys carried out on a population (or household) basis, rather than on the basis of identifiable economic establishments.

5. A FURTHER REFLECTION ON THE DEMOGRAPHIC PROBLEM AS RELATED TO EMPLOYMENT

The creation of employment of a given type depends on the accumulation of requisite capital. The institution of at least minimal levels of employment among the population at large requires, rather, an allocation of capital resources — whether large or small — among various sectors in requisite proportions. The employment problem must be partly attacked by a high over-all rate of economic growth; in other respects, it is also to be reduced in terms of balances, reallocations, and the overcoming of bottlenecks. Particularly in these latter respects, the comprehensive — or demographic — study of all sectors of manpower supply is most relevant.

Aspects of the general employment problem have been mentioned in relation to various population phenomena, such as:

(*a*) the distribution of population among big cities, small towns and the countryside;
(*b*) the distribution of the population by high, intermediate and low levels of educational attainment;
(*c*) the composition of manpower engaged in highly capitalized processes of production, and in processes where moderate, or negligible, amounts of capital are brought into use.

Under each of these aspects, it might appear that the middle term is usually the one least developed in Latin America. Since relative shortages in one economic sector cause a relative redundance in others, the middle term, very often, may be precisely the one which causes the bottleneck.

If there are such bottlenecks, population in the relatively redundant categories can accumulate very rapidly indeed while the over-all rate of population growth is high. Action aimed at overcoming the bottlenecks, accordingly, will have to be taken rapidly.

There are still other ways in which the rate of population affects the employment situation, namely by:

(*a*) the high rate of savings required to produce a greater *per capita* supply of capital;
(*b*) the difficulty to effect savings while children are numerous and many women must inevitably attend to their household chores.

However, even in the employment problem, which may well prove to be a thorny one, a high rate of population growth can bring some incidental advantages.

First, there is a strong pressure for innovation and inventiveness. Though it does not necessarily follow that appropriate inventions will be made, the pressure is certainly there. Its nature can be illustrated as follows.

Population models have been calculated in which one factor is varied at a time.[73] Thus, two populations may be compared, one of which has a birth rate of 18 per 1 000, while the other has one of 38 per 1 000, mortality conditions being the same in both.[74] In the low birth-rate population, the entry rate into the labour force — i.e. young persons attaining the ages of economic activity — is 23.9 per 1 000 the rate of departures — deaths or retirement from jobs in the working population — is 24.9 per 1 000, and jobs are being vacated at a higher rate than they are being applied for; no new jobs would, in fact, have to be created for employment purposes. In the high birth-rate population, the entry rate into the labour force is 39 per 1 000, and the departure rate 14.5 per 1 000; accordingly, 39 jobs must be found where only 14.5 jobs are being vacated by death or retirement; in other words, nearly two out of three of the jobs sought by the young entrants will have to be new jobs.

Secondly, as against the need for new jobs, the very youthfulness of the labour force in a growing population is a factor which gives it great flexibility. The structure of a growing economy will have to change substantially under any conditions. *If jobs of a new type can be created* — whether thanks to provision of capital, education, guidance, or inventiveness — *then the structure of the entire economy can be changed at a very rapid rate.*

[72] Less than 20 per cent in Ecuador, Haiti and Nicaragua; more than 55 per cent in Argentina, Venezuela and Uruguay.

[73] United Nations Population Division, "Les facteurs de variation de la population active", *Proceedings of the World Population Conference, 1954,* (E/CONF.13/415); Monographs: Vol. III. United Nations Publication, Sales No.: 1955.XIII.8 (Vol. III), pp. 597-611.

[74] Birth rates corresponding to gross reproduction rates of 2.5 and 1.25, respectively. Mortality is represented by an expectation of 52.5 years of life at birth.

It is the young persons, still on the look-out for new jobs, who are most ready to take on occupations which differ from those of their fathers, or to move to other localities. Older workers, more wedded to a given environment, work habits and inter-personal relations, are less disposed and less able to effect major changes in their personal careers. Provided it can be utilized, the high rate of entry in Latin America's youthful working population can result in a rapid transformation of the economy. It can be readily calculated that *only 13 to 15 years have to pass before the new job entrants, from a certain date onward, come to form the majority of the working population.*[75]

These potential assets of a rapidly growing population may become effective under favourable conditions. However, the existing drawbacks are numerous, and the conditions to be met are problematic.

[75] Assuming a median age of entry into economic activity of 17 years, and a medium age of about 30-32 years in the economically active population, and that little change in age structure will occur, 13 to 15 annual generations of job entrants form one-half of the working population. Such conditions are approximated in some Latin American countries.

DEVELOPMENT OF COMMODITY TRADE BETWEEN LATIN AMERICA AND THE UNITED STATES

by *David H. Pollock**

Some of the more important developments characterizing commodity trade between Latin America and the United States during two separate periods are measured and assessed in this article. The pattern of Latin America's exports to the United States during the post-war period from 1946 to 1960, considered as a whole, is traced briefly in Section I, emphasis being placed on the significance of movements in quantum and in terms of trade and their interaction to shape the pattern of Latin America's post-war capacity to finance imports of real United States resources. Section II reviews developments during the past few years and considers the flow of commodity trade in both directions in somewhat greater detail than in the previous section. The main purpose of Section II is to examine certain broad commodity trends, to assess the factors that have inhibited the level of inter-hemispheric trade activities since 1957 and, in particular, to offer a few comments on the significance of the slow-down in trade account transactions for the two large trading areas concerned.

* Chief, ECLA Washington office. This article is based on an address to the Conference for Corporation Executives, on Latin America, convened at Washington, D. C., in February 1961 by the School of Advanced International Studies of the Johns Hopkins University. It expresses the personal views of the author and not necessarily those of the ECLA secretariat.

I. LATIN AMERICA'S POST-WAR EXPORTS TO THE UNITED STATES: SOME BASIC TRENDS

1. Decline in Latin America's share of total United States imports: 1946-1960

Looking back over the fifteen years since the end of the Second World War, it is clear that Latin America has not shared proportionately in the very substantial growth trend recorded by total United States imports, whether measured in current values or in terms of physical quantities. Indeed, as shown in figure I and table 1, although total United States import values tripled between 1946 and 1960, those from Latin America grew far less rapidly. As a result, by 1960 Latin America was providing only 24 per cent of the United States total as compared with 36 per cent in 1946. Measured in terms of quantum the decline in Latin America's share was even more dramatic, dropping from 40 per cent to 22 per cent over the same period.

a) *Post-war structural developments affecting the quantum*

This substantial and continuous weakening of Latin America's relative position in the United States market has been due both to structural supply and demand developments affecting the physical quantities traded, and to cyclical price developments that are more recent in origin. On the supply side for example, significant structural inroads have been made into Latin America's share as a result of direct competition from other primary producing areas (e.g. African coffee and Middle East crude oil); from indirect local substitutes (raw and processed United States fruits and juices for bananas, and vegetable fats for cocoa butter); from the development of new artificial products (rayon and noncelullosic synthetics for natural wool, cotton, and hard fibres); and from various technological innovations that have served to reduce the quantity of raw materials and fuel inputs per unit of final output.[1]

Figure I

RATIO OF UNITED STATES IMPORTS FROM LATIN AMERICA TO TOTAL UNITED STATES IMPORTS



[1] "One part of the lag has a technological origin and is not in any way limited to North America: it arises from economies in raw material use, and its continued impact must be expected to keep the rate of increase in commodity absorption trailing behind the rate of increase in manufacturing output"; See *Commodity Survey 1960*, (E/CN.13/39) page 3, United Nations Publication, Sales No. 1961.II.D.1.

Table 1

UNITED STATES: POST-WAR IMPORTS: WORLD TOTAL AND PROPORTION FROM LATIN AMERICA

Year	*Value*[a] *(Millions of dollars)*			*Quantum*[a] *(Millions of dollars at 1947-49 prices)*		
		Latin America			*Latin America*	
	World total	*Total*	*Percentage (B:A)*	*World total*	*Total*	*Percentage (E:D)*
	(A)	*(B)*	*(C)*	*(D)*	*(E)*	*(F)*
1946	4 942	1 762	36	6 418	2 554	40
1947	5 756	2 168	38	6 053	2 356	39
1948	7 124	2 352	33	6 791	2 261	33
1949	6 622	2 301	35	6 622	2 234	34
1950	8 852	2 910	33	8 159	2 328	29
1951	10 967	3 348	31	8 052	2 277	28
1952	10 717	3 411	32	8 308	2 321	28
1953	10 873	3 442	32	8 825	2 341	27
1954	10 215	3 291	32	8 088	2 044	25
1955	11 384	3 328	29	9 043	2 249	25
1956	12 615	3 640	29	9 778	2 411	25
1957	12 982	3 764	29	10 027	2 480	25
1958	12 830	3 589	28	10 413	2 510	24
1959	15 207	3 602	24	12 539	2 704	22
1960[b]	14 654	3 529	24	12 088	2 715	22
1960[b] First quarter.	3 801	914	24			
Second quarter. . . .	3 830	947	25			
Third quarter	3 543	845	24			
Fourth quarter	3 475	832	24			

SOURCE: United States Department of Commerce.
[a] General imports; quantum data represent general imports deflated by unit value indexes of imports for consumption.
[b] Partly estimated.

Of equal if not greater importance, moreover, has been the persistent structural shift in the pattern of United States import demand — away from primary products and towards manufactures. In the latter context for instance, it might be noted that the very substantial post-war growth in real disposable United States incomes has not served to stimulate *per capita* consumption levels of the more important Latin American food and beverage commodities.[2] On the contrary these have remained at or below the levels existing back in the early post-war years. Thus by 1957-1959, United States *per capita* consumption of coffee, in terms of weight, was 13.2 per cent lower than that recorded in 1947-1949. In the case of cacao it was 2.6 per cent lower and for bananas the decline was 1.4 per cent. Sugar consumption on a *per capita* basis had increased slightly, but by less than 3 per cent during this decade.[3]

The same situation, however, has not been typical of many other items imported in advanced stages of processing, which have responded very rapidly to the stimulus of high and rising levels of United States consumer incomes. To single out but two important categories of such goods, reference should be made to the fact that over the past five years alone (1953-1955 to 1959) annual United States imports of passenger cars and parts have risen from $62 million to $818 million and other consumer manufactures have increased from $664 million to $1 371 million during this brief period.[4]

(b) *Recent price weaknesses*

Finally, and superimposed upon these structural supply and demand developments that have been evolving throughout the post-war period, a more recent phenomenon has been taking place that served to further reduce Latin America's share of total United States import values. This phenomenon, which has been extensively covered in recent literatures,[5] involves the downward trend recorded by the prices of most Latin American primary exports, especially since 1954/55, a trend which has not characterized the prices of most internationally traded finished manufactures.[6]

[2] Similarly, the very substantial post-war growth trend in United States manufacturing production has not served to stimulate imports of many Latin American raw materials and intermediate products. One reason is that, excluding metallic and non-metallic minerals, most of the remaining inputs obtained from Latin America have been destined to those United States industries whose output trends have not kept pace with manufacturing production as a whole. New output indexes for such United States manufacturing branches as woollen textiles, carpets, leather products, hard fibre ropes and twines, confectionery items and cigars have all lagged far behind the aggregate United States index of manufacturing production: see *Economic Survey of Latin America, 1957*, (E/CN.12/489/Rev.1), page 18 and Table 28; United Nations Publication, Sales No.: 1958.II.G.1.

[3] *The National Food Situation,* United States Department of Agriculture, selected issues.

[4] Sir Donald MacDougall, *The Dollar Problem: A reappraisal,* Essays in International Finance, Princeton University, 1960, table 13.

[5] See for example International Trade 1959, GATT; *Economic Survey of Latin America 1960,* (E/CN.12/565 and Add.1), and *Commodity Survey*, United Nations, selected issues.

[6] From 1954 to 1960, the average price of Latin American exports to the United States fell by some 20 cent. The average price of Latin American imports from the United States rose by more than 15 per cent over the same period.

Viewed as a whole, therefore, the quantum of United ƚtates imports from Latin America has grown at a much lower rate than the quantum of total United States im-ports since 1946. Furthermore, over approximately the ast five years, prices for Latin American products enter-ng the United States market have deteriorated far more han was the case for average United States import prices onsidered as a whole.

c) *The shifting pattern of United States commodity imports*

The combined effect of these supply, demand and price evelopments on the commodity composition of United tates imports is clearly visible from figure II and table :. On the one hand this table shows the intensity of the hift away from crude materials and foodstuffs. Thus vhereas finished manufactures accounted for only about ne-sixth of all United States imports in 1946-50, their hare had risen to more than one-third by 1960. Con-ersely, crude materials and foodstuffs which accounted or approximately one-half of all United States imports n the early post-war years, are now accounting for less an one-third. The second point to be seen from table 2 elates to the growing momentum of this shift in com-odity composition over the past five years: i.e. whereas nished manufactures accounted for 18 per cent of all Jnited States imports in 1946-50 and 22 per cent in 1954, e ratio subsequently increased very sharply, reaching 6 per cent by 1960.

Since, as is well known, Latin American exports to e United States mainly comprise commodities in crude orm, it is therefore clear why the twenty republics in ggregate have not faced the dynamic demand stimuli at redounded so advantageously to exporters of goods higher stages of manufactures. It is not surprising at Latin America's share of total United States imports ould have fallen between 1946 and 1950 since this eriod coincided with the reincorporation into world trad-g channels of several major areas whose productive apacity had been so adversely affected during the war. Vhat is important, however, is that Latin America's share ontinued to drop steadily, and at an accelerated pace, om 1950 to 1960. The offset, of course, was provided y those industrial regions whose exportable production is heavily weighted by finished manufactures, especially Western Europe (whose share of the total rose from 16 per cent in 1950 to 30 per cent in 1960) and Japan (whose corresponding proportion rose from 2 per cent to 8 per cent).

Figure II

BROAD COMMODITY COMPOSITION OF TOTAL UNITED STATES IMPORTS

(Percentage of total)

NATURAL SCALE



1. Crude materials and foodstuffs
2. Finished manufactured products
3. Manufactured foodstuffs and semimanufactured products

Table 2

TOTAL UNITED STATES IMPORTS[a]: BY MAIN ECONOMIC CLASSES

(Percentage of total)

Year	*Crude materials*	*Crude foodstuffs*	*Manufactured foodstuffs*	*Semi-manufactured products*	*Finished manufactured products*	*Total (millions of dollars)*
1949-50 average	30.3	18.8	10.7	22.3	17.9	6 584
1950	28.2	20.0	10.3	24.3	17.2	8 743
1952	27.3	19.2	10.1	23.9	19.5	10 747
1954	23.6	21.5	10.9	22.6	21.5	10 240
1956	24.7	16.3	9.3	24.0	25.7	12 516
1958	21.7	15.2	11.8	20.7	30.6	12 734
1959	20.6	12.2	10.7	22.0	34.5	14 994
1960[b]	20.5	11.7	10.6	21.1	35.8	14 652

SOURCE: United States Department of Commerce.
[a] Imports for consumption.
[b] Preliminary.

In its various publications, ECLA has long emphasized the leading role exerted by a dynamic export sector upon the level and pace of Latin America's economic development.[7] Given this close interrelationship, there are understandable grounds for concern when Latin America is confronted with such a steady and substantial decline in its share of a market as large as the United States.

2. Stagnation in the capacity to import: 1950-1960

It is not, however, enough to dwell only upon a deteriorating relative position. A related point of basic importance involves the extent to which Latin America's post-war sales to the United States, in absolute terms, have enabled it to obtain fewer or more claims upon real United States resources i.e. the purchasing power of its exports in relation to its imports. To measure the latter, table 3 has been prepared, showing Latin America's capacity to import as the product of its export quantum multiplied by its terms of trade. Since this presentation expresses the import capacity as a function of trade transactions, the positive or negative impact of net service and capital account transactions are excluded by definition. However, as is well known, merchandise exports provide by far the bulk of Latin America's foreign exchange earnings in the United States.[8] Hence table 3 provides a significant indication of the main trends in Latin America's ability to generate direct claims upon real United States resources throughout the post-war period.

[7] See, for example, the various volumes of the series entitled *Analyses and Projections of Economic Development;* also "Central American Post-war Exports to the United States", *Economic Bulletin for Latin America,* Vol. V, No. 2 (Santiago, November 1960), pp. 24 *et seq,* and Raúl Prebisch, "Economic Development or Monetary Stability: the False Dilemma", *ibid.,* vol. VI, No. 1 (Santiago, March 1961), pp. 1 *et seq.*

[8] During the two years 1959-60 for example, Latin American exports to the United States, as recorded by the Balance of Payments Division of the United States Department of Commerce, averaged $3.68 thousand million annually. During the same two years, Latin America's net receipts of United States capital (private and government) and net receipts of United States capital (private and government) and net receipts of unilateral (excluding military) transfers averaged $0.65 and $0.16 thousand million respectively: See *Survey of Current Business,* March 1961, page 9.

Table 3

SELECTED INDEXES OF LATIN AMERICAN-UNITED STATES MERCHANDISE TRADE

(1947 — 1949 = 100)

Year	*Latin America's export quantum to the United States*	*Latin America's terms of trade with the United States*	*Latin America's capacity to import from the United States*
	(A)	*(B)*	*(C)*
1946 . . .	112	83	93
1947 . . .	103	94	97
1948 . . .	99	100	99
1949 . . .	99	106	105
1950 . . .	101	134	135
1951 . . .	100	139	139
1952 . . .	105	138	145
1953 . . .	103	138	142
1954 . . .	91	153	139
1955 . . .	99	139	138
1956 . . .	107	136	145
1957 . . .	110	131	144
1958 . . .	109	124	135
1959 . . .	118	111	131
1960[a] . . .	119	107	127

Source: Columns A and B: United States Department of Commerce. Column C: product of the first two columns.

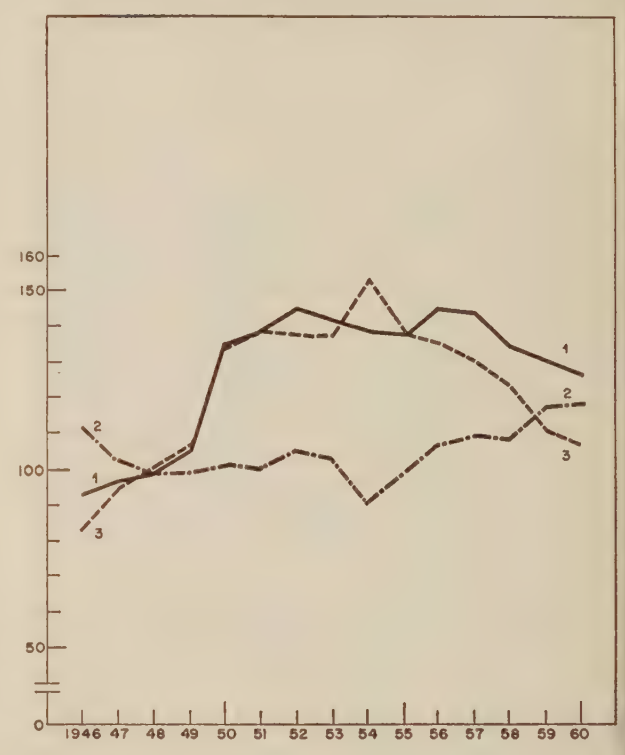
[a] Estimated on the basis of partial data.

Figure III

SELECTED INDEXES OF LATIN AMERICAN UNITED STATES MERCHANDISE TRADE

(1947-49 = 100)

NATURAL SCALE



1. Latin America capacity to import from the United States
2. Latin America's export quantum to the United States
3. Latin America's terms of trade with the United States

(a) *Disparate movements in quantum and in terms of trade*

An examination of figure III and table 3 discloses some important and disparate trends in the quantum and terms of trade headings. The quantum, for its part, has moved in the form of a "U" shaped curve — following an irregular but persistent downward path through the first post-war decade and recovering thereafter. Despite the recent upturn however, it was not until 1959 that the quantum of Latin American exports to the United States reached, let alone exceeded, the level recorded as far back as 1946. The terms of trade, for their part, have followed precisely the opposite trajectory: rising sharply from the end of the war to 1954 (when they had improved by more than 80 per cent) and thereafter turning steadily against Latin America to the point where, by 1960, the

rea had witnessed the elimination of all gains from rela-ive price movements that had taken place since 1949.

The impact of these trends upon the capacity to import as been twofold. One lies in the fact that terms of trade novements have been by far the principal instigators of hange in the resultant import capacity series. During the rst ten post-war years, for instance, only the effect of narkedly favourable relative prices enabled the import apacity to rise by 56 per cent. During the next five ears, similarly, the quantum revival was insufficient to ffset the sharper terms of trade deterioration, and hence he capacity to import declined by 12 per cent. The econd point relates to Latin America's preoccupation vith growth, and the stimulus provided by a dynamic xport sector for such growth. Given these circumstances, t is disturbing to note that, over the decade 1950-60, the mport capacity has moved irregularly around a virtually tagnant trend line. Of more immediate concern moreover s the fact that, during the five years ending in 1960, a radual but persistent downward movement has been aking place.

b) *Significance of the trends in import capacity generated on commodity account*

What future significance might be attached to these ost-war trends in Latin America's capacity to import as efined above? Since several of the factors leading to ecent price movements in international commodity markets have not yet fully run their course (particularly vident in the case of such important primary products s coffee and petroleum) and in the light of the persistent rice increases characterizing international trade in manuactured goods, it is difficult to anticipate any significant ecovery in Latin America's terms of trade, at least durng the short run. Should this recovery take place, Latin merica's merchandise account could generate an exanding import capacity only by producing a progresively greater volume of exportable goods. The danger of lacing major reliance on the latter approach is however vident, given the structural supply and demand developnents mentioned at the outset of this section and relating hem, on the one hand, to the modest quantum growth hat has in fact taken place throughout the post-war period, nd, on the other, to the serious over-production and nventory problems now characterizing several of Latin merica's key primary products.

The seriousness of the impasse briefly traced above can e surmised from the growing volume of recent studies oncerned with such problems. One report, for instance, as projected aggregate United States imports from Latin merica and concluded that until 1965 "they are not xpected to increase annually by much more than 1 per ent, a disappointing performance".[9] Some have conentrated upon individual commodities; in the important ase of coffee, for instance, emphasis has been placed on he growing price and inventory disequilibria facing cofee exporters.[10] Others have stressed the inroads that competing primary producing areas, and substitute items such as synthetics, could exert upon Latin America's future export outlets.[11] And still others have considered the impact of a variety of such myriad problems upon Latin America's developmental prospects generally.[12] One quotation might be noted in this context:

> "The foregoing highlights Latin America's extreme dependence on the exports of a few commodities. It indicates the close interrelationship between a high level of exports and high level of economic activity in the Latin American countries. It shows also that the development of Latin American commodity exports has been unsatisfactory for two reasons. In the short-run, export earnings — have reflected substantial changes in prices — and over the longer-run, volume has shown a disappointingly slow rate of increase. These appear to be the more serious threats in the long-run to the aspirations of the Latin American countries to develop their economies rapidly".[13]

(c) *Service and capital account transactions and trade with areas other than the United States*

Before going on to the next section, reference should be made to two points that have not been covered in the preceding discussion of Latin America's capacity to import: (*i*) the impact of service and capital account transactions and, (*ii*) Latin America's ability to seek markets outside the United States. Regarding the former, it is well known that net invisible transactions (including the servicing of external debt) will not increase the area's import capacity. On the contrary, such transactions will in the future, as in the past, continue to be decidedly negative and hence will make substantial inroads[14] upon Latin America's ability to finance imports. Net long-term capital receipts, conversely, can provide the twenty republics with important drawing rights upon United States resources. To the extent that capital inflows rise above the rather limited levels of the past few years, therefore, they will help to offset the stagnant trend in the import capacity registered by merchandise exports alone. Regarding the second point, to the extent that Latin America succeeds in expanding its exports to other important trading regions of the world such as Western Europe, Japan and Canada, its over-all capacity to import will be correspondingly augmented. Here, however, it can be pointed out that in the past five years, Latin America's capacity to import from the world as a whole has been moving in the same downward direction, although to a

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[9] *The future of Latin American Exports to the United States 965 and 1970,* National Planning Association (Washington 960), page 10.

[10] *The World Coffee Problem: Present Status of the Industry nd Future Prospects,* International Coffee Agreement, World tudy Group, 1960; O. Van Teutem, "Coffee in Latin America: e Producers' Problem", *Economic Bulletin for Latin America,* ol. IV, No. 1 (Santiago, March 1959), pp. 32 *et seq.*; "Proyeciones mundiales del café" in *El Desarrollo Económico de El Salvador* (E/CN.12/495/Rev.1), United Nations Publication, Sales No. 60.II.G.2, pp. 79-84.

[11] "Latin America's Trade with the Common Market Countries of Europe", *Economic Bulletin for Latin America,* Vol. III, No. 1 (Santiago, March 1958), pp. 9 *et seq.*; "Imports of Industrial Countries from Latin America", *Economic Survey of Latin America 1957,* op. cit. pp. 16 to 26.

[12] See for example *Trends in International Trade: Report by a Panel of Experts,* GATT (Geneva, 1958), and studies entitled *United States - Latin American Relations,* Senate Document No. 125, August 31, 1960, prepared for the Subcommittee on American Republics Affairs of the Foreign Relations Committee of the United States Senate.

[13] International Economic Consultants, "Commodity Problems in Latin America" *United States - Latin American Relations,* op. cit.

[14] See *Economic Survey of Latin America 1958,* (E/CN.12/498/Rev.1), United Nations Publication, Sales No. 59.II.G.1; Part I, Chapter III shows that Latin America's total capacity to import was calculated at an annual average of $8.54 thousand million during 1957-58. This total was in turn the composite of merchandise exports ($8.74 thousand million annually); a negative net balance on service account (–$1.43 thousand million per annum); and a positive net balance on capital account ($1.22 thousand million annually).

lesser extent than has been the case indicated above for the United States alone.[15]

(d) *Other possible courses of action to strengthen the capacity to import*

In addition to these possibilities, particular attention should be given to two other possible courses of action to strengthen Latin America's import capacity. These were of relatively minor importance during the post-war period but offer great promise for the future. One relates to Latin America's ability to expand and diversify its export structure — by strengthening the price and quality characteristics of its traditional primary product exports and also by developing new exports, especially those in manufactured form.[16] The other relates to Latin America's efforts to reduce its reliance on imported supplies — both by enlarging the size and improving the competitive status of existing national manufacturing enterprises, and simultaneously by offering wider regional market outlets to manufacturers by extending the scope of intra-Latin American trade through regional integration programmes. The progress achieved recently by the Central American Integration Programme, and the emergence of a Latin American Free-Trade Association are two such developments, particularly timely at this critical post-war juncture. Their successful evolution can and must provide an important series of incentives for resolving some of the problems just discussed. Before proceeding to developments in United States-Latin American trade in the last two or three years, therefore, the problems that have been taking place since the end of the Second World War and the prospects that still lie ahead must be kept in perspective.

[15] From 1950 to 1955, the indexes of Latin America's capacity to import from the United States and from the world as a whole both rose: by 2 and 3 per cent respectively. From 1955 to 1956 both increased by an additional 5 per cent. From 1956 to 1960, conversely both have declined, i.e. by 8 per cent in the case of the United States and by 6 per cent for the world as a whole. Thus, over the past half decade, it can be estimated that Latin America's capacity to import from countries other than the United States has fallen by about 4 per cent.

[16] This is a point that will be mentioned again in a subsequent chapter.

II. TRADE BETWEEN LATIN AMERICA AND THE UNITED STATES SINCE 1957

1. Movements in the aggregate

Table 4 shows some aggregate indexes of Latin American-United States trade since 1957. As will be seen from that table, three developments stand out in importance. The first relates to the sharp deterioration in Latin America's terms of trade with the United States. The second involves the fact that the dollar value of Latin American sales to and its purchases from the United States have both fallen steadily and substantially since 1957. And finally it will be seen that the cutback in Latin American imports from the United States was far greater than the reduction in its exports to that market. A few comments on each of these three points may now be in order.

With the exception of only a few years, the average prices paid by Latin Americans for their purchases from the United States have been rising at a moderate but sustained pace for two decades. Since 1957 the annual increase has been approximately 1 per cent. The unit prices received by Latin America, conversely, which rose so noticeably throughout most of the first post-war decade, have recently reversed themselves and since 1957 have fallen at a rate of about 4 per cent annually. The cumulative effect of these divergent movements have therefore caused Latin America's terms of trade with the United States to deteriorate by close to 20 per cent between 1957 and 1960 — a deterioration greater than that recorded during any other comparable period of the past 15 years. This has, as a result, served to bring the relative position of Latin America's export and import prices back to the level first exceeded prior to the outbreak of hostilities in Korea.

As shown in table 4, Latin American exports to the United States have, since 1957, risen in terms of the physical quantities shipped. However, the growth in quantum was, each year, more than offset by a fall in average prices per shipment. A different situation has characterized recent movements of Latin American imports from the United States, i.e., there has been a decline in both the value and volume of the trade in this direction. Obviously a judgement on the significance of these respective trends will depend upon an exami-

Table 4

INDEXES OF LATIN AMERICAN-UNITED STATES MERCHANDISE TRADE, 1957-60

(1958 = 100)

Year	*Latin American exports to the United States*			*Latin American imports from the United States*			*Latin American terms of trade with the United States*
	Quantity	*Value*	*Unit value*	*Quantity*	*Value*	*Unit value*	
1957 . . .	101	106	105	113	112	99	106
1958 . . .	100	100	100	100	100	100	100
1959 . . .	108	98	91	85	86	102	90
1960[a] . .	109	98	89	83	85	103	86

Source: United States Department of Commerce.
[a] Partly estimated.

Table 5

THE LEVEL AND BALANCE OF LATIN AMERICAN MERCHANDISE TRADE WITH THE UNITED STATES, 1957-60

(Millions of dollars)

	1957	*1958*	*1959*	*1960*
Latin American exports to the United States	3 764	3 589	3 601	3 529
Latin American imports from the United States	4 567	4 073	3 515	3 455
Latin American net trade balance . . .	— 803	— 484	+ 87	+ 74

SOURCE: United States Department of Commerce, based on United States general imports from Latin American and United States exports (including re-exports but excluding special category items) to Latin America.

tion of the specific commodities traded. In terms of gregates, however, it will be noted that progressively wer real United States resources have been moving to tin America in recent years, and at higher average ices, whereas the reverse has been true for the return w of goods.

In looking finally at the value of the trade under view, it will be seen that Latin American sales to the nited States fell from $3.76 thousand million in 1957 $3.53 thousand million in 1960 — decline of nearly per cent. Latin American imports, on the other hand, l much more — from $4.57 to $3.46 thousand million, by some 24 per cent. The basic reason for these notice-ly divergent absolute and relative reductions has been tin America's attempt to correct its recent and growing er-all balance of payments disequilibrium, by convert-g the substantial trade account deficits of earlier years moderate trade accounts surpluses in the more recent st. The developments actually recorded are shown in le 5. Thus, whereas in 1957 and 1958 Latin America d a net adverse merchandise balance with the United ates of close to $800 and $500 million respectively, by 59 and 1960 small positive balances in the neighbour-od of $75 — $85 million were being recorded. The al effect therefore has been that Latin American-United States trade is now taking place at significantly lower levels (in 1957 the total trade turnover was $8.33 thousand million, whereas in 1960 it was only $6.98 thousand million, even though at a much closer degree of over-all balance.

2. Some over-all trends in the commodity composition

(a) *Latin American exports, by broad commodity groups*

In table 6, Latin American exports to the United States have been tabulated in two broad groups, one encompassing the products that have traditionally been most important in this trade and the other including a variety of residual items.

As will be seen, the main traditional commodities continue today, as in the past, to dominate the pattern of Latin America's export trade. However, in both absolute and relative terms, their dominance appears to be falling. Thus these products totalled $3.03 thousand million in 1957 and $2.86 thousand million in 1960, representing 81 per cent of all Latin American sales to the United States in the former year but only 74 per cent in the latter. The residual items conversely have risen from $0.73

Table 6

UNITED STATES COMMODITY IMPORTS FROM LATIN AMERICA, 1957-60

(Millions of dollars)

	1957		*1958*		*1959*		*1960*	
	Value	*Percentage*	*Value*	*Percentage*	*Value*	*Percentage*	*Value*	*Percentage*
neral Imports	3 764		3 589		3 602		3 529	
ss: Excess of entries into customs warehouses over withdrawals . . .	4		24		104		32	
uals imports for consumption . . .	*3 761*	*(100)*	*3 565*	*(100)*	*3 498*	*(100)*	*3 497*	*(100)*
Main traditional commodities . .	*3 033*	*(81)*	*2 710*	*(76)*	*2 575*	*(74)*	*2 862*	*(74)*
Foods and beverages[a]	1 702		1 586	(44)	1 511	(43)	1 394	(40)
Petroleum and metals[b]	1 259		1 069	(30)	990	(28)	1 403	(32)
Textile fibres[c]	72		55	(2)	74	(2)	65	(2)
All other commodities[d]	728	(19)	855	(24)	923	(26)	906	(26)

URCE: United States Department of Commerce.
Raw or green coffee, sugar cane, cacao or cacao beans and bananas.
Crude petroleum, residual fuel oil, non-ferrous metals and ferro-alloys.
Jnmanufactured wool and hard fibres.
'or a partial listing of these commodities, see Table 7.

Table 7

UNITED STATES: IMPORTS OF MISCELLANEOUS ITEMS FROM LATIN AMERICA, 1957-60

(Millions of dollars)

	1957	*1958*	*1959*	*1960*
Iron ore and concentrates	152	144	168	207
Meat products and cattle	58	134	122	88
Fish, including shellfish	47	52	62	67
Vegetables and preparations	26	42	33	38
Textile manufactures	31	31	37	38
Tobacco and products	30	30	32	32
All others	384	422	469	436
Total	*728*	*855*	*923*	*906*

SOURCE: United States Department of Commerce, based on imports for consumption.

thousand million in 1957 to $0.91 thousand million in 1960, with their share of the total increasing from 19 per cent to 26 per cent respectively. To some extent therefore a diversification in Latin America's trade commodity composition with the United States has recently been taking place.

(i) *Main traditional commodities.* Within the category of "main traditional commodities", reductions have taken place in the value of most component items since 1957. There have been several reasons for this. Of major importance have been the impact of deteriorating prices, certain United States trade restrictions, and competition from other areas. In addition, shifts in consumer preferences and in industrial technology have been relevant. Coffee has been one of the hardest hit by international price weaknesses.[17] Cacao and crude oil were two other products with noticeably lower prices since 1957. The inauguration of import quotas on United States imports of crude oil, lead and zinc were also significant in lowering the import of these three items. As for competition from other areas, Latin American cacao, sugar, lead, zinc and hard fibres, among others, have lost ground in terms of total United States imports of the same items over the past few years.

Separate reference should be made at this point to some of the more encouraging developments in United States imports of the principal traditional commodities. Thus given the continuous changeover in United States petroleum refining processes (away from fuel oil and towards lighter end products) Latin American shipments of residual fuel oil to the United States have been rising, in marked contrast to their declining shipments of crude oil. Similarly, the revival in United States demand for both domestic and imported supplies of unmanufactured wool, and the noticeable firming of prices, have resulted in higher Latin American sales of this natural fibre since 1958, the first reversal in fact of a downward trend that had been taking place since 1955. Lastly, United States imports of Latin American copper rose sharply in 1960.[18]

(ii) *The residual commodities.* Many of the items included under this heading are relatively recent additions to Latin America's export trade, and, as shown in table 7, several have recorded very dynamic growth rates during the past few years. Prominent among them are iron ore and concentrates, meat products and cattle, fish (including shellfish) and vegetables and preparations. Others, while not recording such dynamic trends, have nonetheless done better than many of the main traditional commodities; textile manufactures (including bagging)

[17] In 1960 for instance, the United States imported 150 million more pounds of Latin American coffee than in 1958 but the value of such imports fell by $140 million.

[18] One important effect of the prolonged 1959 strike, in United States refineries, on recorded United States trade data should be noted. During 1959, United States general imports of copper rose far more than did imports for consumption, the difference representing unrefined copper imported during the strike for entry into bonded warehouse, as an available backlog for subsequent withdrawal and refining after the strike was over.

Table 8

UNITED STATES EXPORTS TO MAJOR WORLD TRADING AREAS,[a] 1957-60

	1957		*1958*		*1959*		*1960*	
	Value	*Percent of total*	*Value*	*Percent of total*	*Value*	*Percent of total*	*Value*	*Percent of total*
All areas	*18.87*	*100.0*	*15.82*	*100.0*	*15.84*	*100.0*	*18.79*	*100.0*
Latin America	4.57	24.2	4.07	25.7	3.51	22.2	3.45	18.4
Canada	3.91	20.7	3.42	21.6	3.73	23.6	3.70	19.7
Western Europe	5.70	30.2	4.46	28.2	4.50	28.5	6.28	33.4
Near East	0.41	2.2	0.42	2.7	0.44	2.9	0.48	2.6
Far East (incl. Oceania)	3.27	17.3	2.47	15.6	2.63	16.4	3.61	19.2
Africa	0.68	3.6	0.61	3.9	0.69	4.2	0.76	4.0
All others[b]	0.33	1.7	0.36	2.3	0.36	2.3	0.50	2.7

SOURCE: United States Department of Commerce.
[a] Including re-exports, excluding special category exports.
[b] Including exports to European dependencies in South America, the USSR, the countries of Eastern Europe and mainland China.

Table 9

LATIN AMERICA'S IMPORTANCE AS A MARKET FOR UNITED STATES EXPORTS,[a] 1958-60

	1958		*1959*		*1960*	
	(A)	*(B)*	*(A)*	*(B)*	*(A)*	*(B)*
odstuffs and beverages	2 223	19.0	2 409	16.0	2 619	13.6
xtile fibres and manufactured goods	1 281	13.7	1 109	14.9	1 699	8.7
edible animal and vegetable products	1 329	11.0	1 578	10.1	1 767	8.7
ood and paper	450	26.2	508	22.0	612	17.4
on-metallic minerals	1 292	17.3	1 099	17.0	1 108	15.8
emicals and products	1 343	30.0	1 476	27.4	1 661	24.0
etals and manufactures	1 531	27.4	1 317	22.6	2 060	14.9
achinery and vehicles	5 292	36.3	5 234	30.1	6 047	26.2
iscellaneous (including re-exports)	1 082	22.2	1 105	20.1	1 212	18.5
All goods	*15 823*	*25.7*	*15 838*	*22.2*	*18 785*	*18.4*

URCE: United States Department of Commerce.
: Total United States exports (millions of dollars).
Percentage of United States exports to Latin America.
Including re-exports, excluding special category items.

d tobacco are two instances where modest increases ve been taking place at the time when total United ates imports from Latin America were falling.

Finally the rest of this miscellaneous category, encom- ssing a wide variety of minor valued items have also en increasing (from $384 million in 1957 to $436 mil- n in 1960). These latter products range widely in type: ., long staple cotton, inedible oils and oilseeds, leather d products, molasses, exotic fruits, tanning extract, rbs and spices, and many other specialized items.

In analysing the significance of all "residual com- odities" taken together, two points should be noted. rst, as mentioned earlier, they have been increasing in lue whereas the traditional items have, in aggregate, en falling. To that extent therefore they have enabled ne commodity diversification to take place in Latin nerican exports to the United States. The second point that, with only a few exceptions, these increases have been the result of products exported in primary or semi-processed form. Latin American "residual" exports in advanced stages of manufacture, conversely, have not yet been of any relevance in so far as the United States market is concerned.

(b) *United States exports, by broad economic categories*

In 1957, United States exports to the world as a whole totalled $18.9 thousand million. In 1958 and 1959 they dropped to $15.8 thousand million, and in 1960 recovered sharply again to $18.8 thousand million. Despite this over-all pattern of abrupt decline and recovery, however, United States sales to Latin America fell steadily during each of the four years mentioned. Indeed as shown in table 8, Latin America was the only major world market in which a persistently downward trend was recorded by United States exports. Expressed in constant prices, in

Table 10

HANGES IN THE COMMODITY COMPOSITION OF UNITED STATES EXPORTS TO LATIN AMERICA: 1958 TO 1960[a]

	1958		*1959*		*1960*	
	(A)	*(B)*	*(A)*	*(B)*	*(A)*	*(B)*
odstuffs and beverages	428	10.5	388	11.0	355	10.3
xtile fibres and manufactures	176	4.3	165	4.7	147	4.3
(Sub-total)	*(604)*	*(14.8)*	*(550)*	*(15.7)*	*(502)*	*(14.5)*
dible animal and vegetable products	146	3.6	159	4.6	154	4.5
od and paper	118	2.9	112	3.2	107	3.1
(Sub-total)	*(264)*	*(6.5)*	*(272)*	*(7.8)*	*(261)*	*(7.6)*
n-metallic minerals	223	5.5	188	5.4	175	5.1
emicals and products	403	9.9	404	11.6	399	11.5
(Sub-total)	*(626)*	*(15.4)*	*(592)*	*(17.0)*	*(574)*	*(16.6)*
tals and manufactures	420	10.3	298	8.5	306	8.9
chinery and vehicles	1 919	47.1	1 578	44.7	1 586	45.9
(Sub-total)	*(2 339)*	*(57.4)*	*(1 859)*	*(53.2)*	*(1 892)*	*(54.8)*
scellaneous (including re-exports)	240	5.9	224	6.2	226	6.5
ll goods: Total	*4 073*	*100.0*	*3 515*	*100.0*	*3 455*	*100.0*

URCE: United States Department of Commerce.
ncluding re-exports, excluding special category items.
United States exports to Latin America (millions of dollars).
Percentage of total United States exports to Latin America.

1960 the total to Latin America was some 10 per cent lower than that recorded as far back as 1947-1949.

As a result of the above, Latin America's share of the total fell from 24.2 per cent in 1957 to 18.4 per cent in 1960. Nonetheless, the region continues to be one of the largest markets for the United States, ranking next to Western Europe and higher than Canada during the average period 1957-1960. Moreover, as seen in table 9, the importance of Latin America for several specific items is far higher than that indicated by the total. This is particularly true for manufactures, especially capital goods and some intermediate products. The category of "machinery and vehicles" is one very pertinent case in point i.e., this category alone has recently been accounting for approximately one-third of total United States exports and in turn between 26-36 cents out of each dollar received from United States exports of commercial (non-military) machinery and vehicles have come from Latin America. Similarly, Latin America has recently provided 24-30 cents out of each dollar's worth of United States chemical exports, and 15-27 cents in the case of metals and manufactures. Conversely Latin America has been taking much lower proportions of total United States exports of non-durable consumer goods, fuels and lubricants, and certain intermediate products.

In table 10 the broad commodity composition of United States exports to Latin America since 1958 is listed. From that year to 1960, United States sales fell by over 600 million dollars, with every group declining in absolute terms. Of particular interest, however, have been the changing proportions of the main categories listed. The principal non-durable consumer goods (foods, beverages and textile items) retained virtually the same share of total in each year, i.e., some 15 per cent. The main primary and intermediate products (inedible animal and vegetable products, wood and paper, fuels and lubricants, and chemicals and products) increased their share from 22 to 24 per cent. Thus it follows that machinery and vehicles, and metals plus their manufactures (which include the bulk of United States capital goods exports to Latin America.[19]) were the only major categories that fell in relative importance: i.e., from over 57 per cent

[19] Less than 10 per cent of the total of these combined headings represented household durable appliances in 1959.

Table 11

UNITED STATES: EXPORTS TO LATIN AMERICA OF METALS AND MANUFACTURES, AND MACHINERY AND VEHICLES: 1958 AND 1960[a]

(Millions of dollars)

	1958	1960	Change from 1958 to 1960	
	Value		Value	Percentage
A. *Metals and manufactures: total* . . .	*420*	*306*	*−114*	*−24*
1. Iron and steel-making raw materials (chiefly scrap)	12	16		
2. Iron and steel-making products (excluding pig iron and scrap) . . .	186	142		
3. Non-ferrous metals and ferroalloys (including scrap)	37	40		
4. Metal manufactures	185	107		
B. *Machinery & vehicles: total*	*1 919*	*1 586*	*−333*	*−17*
1. *Machinery: sub-total*	*1 221*	*1 010*	*−211*	*−17*
(a) Electrical	313	222		
(b) Industrial	758	627		
Power generating machinery	77	60		
Construction, excavation and mining	243	211		
Metalworking and machine tools	103	73		
Textile, sewing and shoe machinery	27	33		
Service industry and other industrial machinery . . .	308	249		
(c) Office machines and parts . .	28	29		
(d) Agricultural machines and implements	25	27		
(e) Tractors, parts and accessories	86	97		
2. *Transport vehicles: sub-total* . . .	*698*	*576*	*−122*	*−17*
(a) Motor trucks, buses, passenger cars and parts.	452	431		
(b) Railway equipment	64	65		
(c) Civilian aircraft	130	50		
(d) Others: mainly watercraft . .	53	30		
All items listed: total	*2 339*	*1 892*	*−447*	*−19*

Source: United States Department of Commerce.
[a] Including re-exports, excluding special category items.

less than 55 per cent. In short these two categories alone accounted for by far the majority ($447 million) of the total drop ($618 million) in United States exports to Latin America between 1958 and 1960.

Because of their substantial magnitudes and economic importance, machinery and vehicles, and metals plus manufactures are detailed in table 11. As will be seen, the over-all $447 million decline was spread over every capital good of significance. Thus, metals and manufactures fell by $114 million; machinery by $211 million and transport vehicles by $122 million. For each of these three groups the reductions were in the order of 17-24 per cent. For all of them taken together the reduction was just under 20 per cent.

The above-mentioned capital goods items hold special significance in the trade under discussion for three main reasons: (*a*) they comprise by far the largest group of United States exports to Latin America, typically more than half of the total; (*b*) they alone have tended in recent years to account for most of the export declines that did take place, and (*c*) as is well known, capital goods production is still relatively small in most Latin American countries and the United States has long been the principal source of the area's annual imports of investments goods — approximately three-fourths in the last few years. Thus the sharp drop taking place during the period under review means that there were correspondingly large cutbacks in recent increments to Latin America's stock of domestic fixed investments.[20]

The reasons why capital goods accounted for most of the reduction in Latin American purchases might be noted. For one thing, Latin America's rapidly burgeoning manufacturing sector, producing mainly for local consumption, has heightened the area's reliance upon imported intermediate products for domestic industrial transformation. For such goods, therefore, only a small margin can be cut without a corresponding cutback occurring in internal production and employment levels. Secondly, imported consumer goods have been closely controlled in recent years to the point where the margin of "non-essentials" has also become comparatively small. Thus, since there is relatively little room for a further compression of consumer and intermediate goods imports, and since such a large proportion of Latin America's total imports from the United States are represented by capital goods, the latter are certain to be affected when the need to conserve scarce foreign exchange becomes urgent, as has been the case over the past three or four years. Finally, investment activity in Latin America is closely linked to developments in the area's export sector. When the latter is depressed, general economic activity and thus savings and demand tend also to be depressed, which in turn inhibits both the incentive and the ability to invest in imported capital equipment.

[20] Although Latin American imports of capital goods were better sustained from third areas, their modest increases were far below what was needed to offset the very substantial and continued declines from the quantitatively far more important United States supplies.

Before leaving this review of recent trends in United States exports to Latin America, one final point should be noted. Latin America's gold reserves and dollar holdings have fallen steadily in recent years, i.e., from $4.6 thousand million in 1957 to $3.7 thousand million by the end of 1960. As will be seen from table 12, Latin America was the only major world trading area losing gold and dollars each year since 1957. Thus, since the region has not been able to obtain more foreign exchange by expanding its exports to the United States, conservation of available reserves has been attempted by substantial reduction in its purchases from the United States. Clearly, a continuation of this recent development would be disadvantageous for both of the two trading partners involved. As previously noted, machinery and metals comprise a very large share of total United States exports and so to the extent that Latin America further reduces such purchases, this reduction would serve to place additional pressures on the United States balance of payments — already showing substantial deficits since 1958. On the other hand, since over half of Latin American purchases from the United States are capital goods, additional declines in these goods would contribute further to the slow-down in Latin America's pace of internal economic activity that has been so evident over the past few years.

Table 12

ESTIMATED GOLD RESERVES AND DOLLAR HOLDINGS,[a] 1957-60

(Thousand million dollars, end of period)

	1957	*1958*	*1959*	*1960*
Latin America	4.6	4.1	4.0	3.7[a]
Western Europe	17.8	21.6	23.1	26.8
Canada	3.2	3.4	3.6	4.2
Asia	2.9	3.2	4.0	4.5
International agencies[b]	2.9	3.4	6.2	8.2
All others	1.2	1.3	1.3	1.3
Total[c]	*32.6*	*36.6*	*42.4*	*48.7*
Sterling area[d]	4.2	5.1	5.1	6.6

Source: Board of Governors of The Federal Reserve System.
[a] Including gold, short term dollar holdings, and United States Government bonds and notes.
[b] 1960 includes also the Inter-American Development Bank.
[c] Totals may not balance due to rounding. Excluding the USSR, the countries of Eastern Europe and mainland China.
[d] Sterling nations are included in their geographic areas.

1. 1946-1960: Some basic trends

By 1960, Latin America's share of total United States imports had fallen to its lowest point since the end of the Second World War, with one of the more important circumstances contributing to this development being the fact that United States import demand was so much larger for finished manufactures than for many of the traditional primary products long comprising the bulk of Latin America's export trade.

Dividing the post-war years into two main periods, it will be noted that the first decade was marked by a small decline in the quantum of Latin American exports to the United States, and by a very substantial improvement in the corresponding terms of trade. Solely as a result of the latter, Latin America's capacity to import (as generated directly by its merchandise sales to the United States) rose by almost one half during the decade following 1946. Subsequently, however, the reverse has been taking place, again with relative price trends being the key determining variable; i.e., a quantum revival was offset by a much sharper deterioration in the terms of trade. By 1960, as a result, the import capacity had returned to a level first surpassed back in 1950. Moreover, and as attested by numerous recent studies on these developments, the prospects seem slight for any noticeable import capacity improvement occurring through commodity transactions, at least in the short run, both because terms of trade for primary products generally are still in a depressed post-war phase, and because any significant quantum revival is doubtful for most of Latin America's principal mineral and agricultural export items.

2. The past few years

Since 1957, the value of Latin American exports to the United States has stagnated. Within this stagnating plateau two interrelated but divergent trends have been evolving. One is the fact that a rising volume of Latin American exports has been more than offset by declining prices. Indeed, the region's unit prices and hence its terms of trade have recently been undergoing the sharpest deterioration of the entire post-war period. Secondly, the period since 1957 was marked by a new phenomenon in which Latin America's main traditional exports have in general recorded a disappointing performance, falling in both absolute and relative terms, while simultaneously many new and seemingly more growth-prone exports have increased in importance. Although these more dynamic items have served to broaden somewhat the commodity composition of Latin America's exports to the United States, this has not resulted from expanded sale of goods in manufactured form.

Over the past few years, Latin American purchases from the United States have declined much more sharply than their sales to that country. Indeed, Latin America was the only important world market to which United States export have fallen off continuously since 1957. One reason for this development lies in the fact that Latin America's capacity to finance imports, as generated from its merchandise exports, has declined. Another contributing factor has been Latin America's balance of payments debits resulting from net transactions on non-merchandise account. In any event, the basic problem for the region has been to husband its depleted gold reserves and dollar holdings. Since its traditional exports to the United States have not been growing, the area has attempted to expand and diversify new types of exports. Much more important still, it has sought to stem its reserve outflows by reducing imports from the United States. Almost exclusively as a result of these import cuts, Latin America has shifted from trade account deficits totalling $1.3 thousand million in 1957-58 to surpluses totalling some $0.16 thousand million in 1959-60.

3. Significance of the preceding developments

The developments referred to above brought with them three concurrent circumstances that were disadvantageous to both of the regions involved. On the one hand, they took place at the cost of a steadily declining level of total trade, i.e., the combined export and import totals have fallen from $8.3 thousand million in 1957 to $7.7 thousand million in 1958, $7.1 thousand million in 1959 and only $6.9 thousand million in 1960. Secondly, Latin America has been the second largest United States export market in recent years and when its purchases decline as substantially as they have been doing, Latin America's resultant trade surpluses add directly to the growing deficits recorded by the United States balance of payments with the world as a whole. Lastly, for the several reasons outlined elsewhere in this article, it was shown that most of the recent cutback in United States sales to Latin America involved capital goods. The great majority of Latin America's capital goods imports originate in the United States and such goods still provide a critical proportion of the annual net addition to Latin America's stock of fixed domestic investment. Thus, so long as these recent developments are allowed to persist, it follows that Latin America's pace of internal capitalization will continue to be inhibited, with undoubted repercussions upon its levels of domestic output, employments and economic development in general.

PRODUCTIVITY OF THE AGRICULTURAL SECTOR IN ECUADOR*

ı order to become acquainted with the various problems agriculture in Ecuador, it is important to study the oductivity of the factors of production, which finds its earest expression in the gross product or value added r unit of land, capital and labour.

The conclusions reached in the present study make it ain that agriculture in Ecuador is still in the early ages of development. The productivity of labour is very w, a deficiency which is intensified in farming for omestic consumption and becomes still more marked in e livestock sector. Land yields are equally modest, and flect the limitations of technological development, which e even more serious in stock farming. Capital formation the sector is inadequate,and most of the investment es into soil improvement, animal inventories and housg. Investment in operating capital or other improveents calculated to promote the more efficient utilization land and labour is very small.

In the ensuing pages the use of the main factors of oduction will be discussed in some detail. The analysis lates to the agricultural sector in general and to three its branches in particular, namely, agriculture for export (coffee, cacao and bananas), crop farming for doestic consumption and livestock production.

* The present article summarizes the results of a survey carried some time ago by an agricultural economist of the ECLA cretariat in co-operation with the "Junta Nacional de Planifican y Coordinación Económica" of Ecuador. Apart from the interest t this study may have in itself, owing to the special characstics of Ecuadorian agriculture, it has been thought useful to lude it in this issue of the *Bulletin* for the contribution that might make, from a methodological point of view, to the dertaking of similar studies in the future.

1. Inputs in the agricultural sector

The amount of inputs or intermediate products used is a highly significant indicator of the degree of agricultural development. Technical progress is linked to important changes in methods of work and in the operational resources at the farmers' disposal. In the initial phases of development, seed is almost the only material used in crop farming, livestock feeds on natural vegetation and capital is represented by small and rudimentary hand tools. In such circumstances, the inputs used are minimal, and, in contrast, the proportion of manpower employed per unit of area and of yield is very high. The productivity of land and labour is extremely low. With the development of more advanced techniques begins the spread of diversified forms of traction, application of fertilizers, soil conservation practices, animal and plant pest and disease control, use of improved seed, better herd management systems, etc. These innovations imply the gradual replacement of manpower by machinery and other inputs produced outside the sector, or, in other words, the initiation of a process of exchange between the agricultural sector and the other sectors of the economy which improves the productivity of all the factors of production.

The amount and structure of inputs in Ecuadorian agriculture betray great technical backwardness. In 1955, inputs represented 13 per cent of the value of production at farm level. Of the inputs in question, 53 per cent comprised materials supplied by the agricultural sector itself (seed and animal feeds), and 47 per cent was constituted by materials and services purchased from outside the sector (see table 1).

Table 1

ECUADOR: DETERMINATION OF VALUE ADDED (GROSS PRODUCT) IN THE AGRICULTURAL SECTOR, 1955

(Millions of sucres)

Value of agricultural production at farm level			4 052
Deduction for materials and services			543
A. *Materials:*			
(1) From the same sector		290	
Seed	110		
Animals feeds	180		
(2) From other sectors		118	
Seed	2		
Fertilizers and soil ameliorators	23		
Animal feeds	12		
Animal vaccines and medicaments	4		
Fuels and lubricants	15		
Containers and packing materials	62		
B. *Payment for services rendered by other sectors*		135	
Maintenance	69		
Interest and commissions on loans	66		
Value added (gross product)			3 509

Sources: See annex.

Table 2

ECUADOR: BREAK-DOWN OF VALUE ADDED IN THE AGRICULTURAL SECTOR BY FACTOR COSTS, 1955

(Millions of sucres)

A. Income of the factors of production in the sector		3 228
(1) Salaries and wages	1 764	
(2) Entrepreneurs' profits	1 464	
B. Depreciation costs		266
C. Indirect taxation		15
Value added		3 509
Total inputs		543
Value of production		4 052

Source: See annex.

The principal inputs are seed and animal feeds (the latter consisting almost entirely of bananas and plantains), since in the year under discussion they represented 21 and 35 per cent, respectively, of total inputs. In contrast, other elements indicative of technically advanced farm practices calculated to maintain or improve the fertility of the soil, protect plants and animals from pests and diseases, provide traction, etc., are of little importance. Fertilizers, for example, constituted barely 4 per cent of all inputs; animal medicaments and vaccines, less than 1 per cent; fuels and lubricants, 3 per cent; and capital maintenance, 13 per cent.

In the last few years, however, the use of specific inputs has become more widespread, and this may mean that a process of technological improvement has set in. Thus, the past decade witnessed a considerable intensification both in the application of fertilizers, the volume of which increased 40 times over, and in the administration of animal medicaments and vaccines, which doubled.

2. Value added in the agricultural sector

Agriculture is the most important sector of production in the Ecuadorian economy. In 1955, it accounted for 32 per cent of the gross national product, while manufacturing industry contributed only 18 per cent; the extractive industries, 2 per cent; construction, 3 per cent; transport, 5 per cent; and services in general, 41 per cent.

The value added or gross product is broken down by salaries and wages, ground rent, entrepreneurs' profits, payment of indirect taxes and depreciation of capital. Where the technical level of agriculture is low and equipment is lacking, as in Ecuador, labour inputs are enormous. In 1955, they absorbed 50 per cent of the value added and 44 per cent of the value of production. Again, owing to its low degree of efficiency, agricultural labour is the worst paid of all and has the smallest gross product figure. Entrepreneurs' profits constituted 36 per cent of the gross product, and depreciation, which in a technically developed agricultural sector would reach significant proportions, represented not more than 7 per cent (see table 2).

It is interesting to compare these figures with the data for other countries, such as Colombia, which is also only just beginning to introduce more up-to-date techniques, and the United States where a very advanced stage of technical development has been reached. Such a comparison throws into relief the differences between agricultural sectors at varying technical levels. While in the United States, inputs represent 36 per cent of the value of production, in Ecuador and in Colombia they fluctuate around 13 per cent. Depreciation approaches 12 per cent of the value of production in the United States, while in the other two countries it hovers between 5 and 7 per cent. The higher degree of efficiency of manpower utilization in the United States — owing to the availability of equipment and machinery and to other advanced farming techniques — so considerably reduces the labour input that, despite high wage levels, salaries and wages account for less than 9 per cent of the value of pro-

Table 3

ECUADOR: VALUE OF PRODUCTION, VALUE OF INPUTS AND GROSS PRODUCT IN THE MAIN BRANCHES OF THE AGRICULTURAL SECTOR, 1955

(Millions of sucres)

	Crop farming			
	For domestic consumption	*For export*	*Stock farming*	*Total agriculture*
Value of production	1 698.0	1 439.0	915.0	4 052.0
Value of inputs	244.0	62.0	237.0	543.0
Value added	1 454.0	1 377.0	678.0	3 509.0
Area farmed (thousands of hectares)	859.9	471.7	1 740.2	3 071.8

Source: See annex.

Table 4

ECUADOR: DISTRIBUTION OF ACTIVE POPULATION IN THE MAIN BRANCHES OF THE AGRICULTURAL SECTOR, 1955

	Crop farming			
	For domestic consumption	*For export*	*Stock farming*	*Total agriculture*
Area farmed (thousands of hectares) . .	860.0	472.0	1 775.0	3 072.0
Active population (thousands of persons)	321.6	102.8	225.8	650.2
Hectares per active person.	2.7	4.6	7.9	4.7

SOURCE: Direct research with the co-operation of the Ministry of Development and of the National Economic Planning and Co-ordination Board *(Junta Nacional de Planificación y Coordinación Económica).*

uction, instead of 44 and 54 per cent as in Ecuador nd Colombia, respectively.

Mention should also be made of the part played by ie various branches of farming in the formation of cuador's gross agricultural product. The statistics given n table 3 show that crop farming for export is the most fficient, since, while taking up only 15 per cent of the nd farmed, it contributes 39 per cent of the gross agriultural product. Stock farming, on the contrary, is the ast productive sector, since it occupies an area almost ur times as large as that used for growing export crops, nd contributes only the equivalent of half the gross roduct of agriculture for export.

3. ACTIVE POPULATION AND PRODUCTIVITY OF LABOUR

arming is also the chief source of employment, for out an economically active population which in 1955 was timated at 1 328 000 persons, 650 200 (or 49 per cent) orked in the agricultural sector. The research conducted owed that, in the year in question, the agricultural bour force worked 1 570 million hours, earning approxiately 1 760 million sucres.

According to an estimate of the distribution of the tive population among the standard lines of production r export, about 322 000 persons (50 per cent) are gaged in crop farming for local consumption, to which 0 000 hectares are assigned. This means that on an erage one active person is needed for every 2.7 hectares. op farming for export uses less manpower per unit of ea, since with the equivalent of 105 000 active persons 6 per cent) 472 000 hectares are farmed; in other words, e worker suffices, on an average, for 4.6 hectares.

Stock farming is the sector in which inputs of human bour are lowest; it employs the equivalent of 226 000 rsons (35 per cent) to look after herds pasturing on 75 000 hectares, that is, one person per 7.9 hectares der grass (see table 4).

The foregoing data show that the use of human labour crop and stock farming in Ecuador is excessive, and s fact becomes the more patent when the figures are mpared with those for other countries. Thus, for exple, while in livestock production in Ecuador one per is employed per 8 hectares under fodder crops, in lombia the corresponding area is 26 hectares and Argentina 60 hectares. In crop farming, the situation Ecuador is slightly better than that of Colombia, ere this activity is at a fairly similar stage of developnt. Thus, while in Ecuador one person is employed on an average for every 3 hectares under cultivation, in Colombia one worker tills 2.5 hectares. In Argentina, on the other hand, the ratio is one person to every 21 hectares.

The levels of productivity of the agricultural worker are also much lower than in other economic activities. As has already been shown, farming employs 49 per cent of Ecuador's labour force, and its contribution to the formation of the gross product is only 32 per cent. This means that all the other productive activities, which provide employment for the remaining 51 per cent of the active population, contribute twice as much to the gross product as does the agricultural sector; in other words, the productivity of agriculture is approximately half that of the rest of the economy (see table 5).

Within the agricultural sector itself, there are substantial disparities in the productivity of the labour force. For example, stock farming is the activity in which agricultural labour is least efficiently used, since the gross product generated *per capita* amounts to only about 3 000 sucres; in crop farming for domestic consumption and for export, on the other hand, the corresponding figures are 4 500 sucres and 13 400 sucres, respectively. So low a degree of productivity is reflected in the level of wages, to such an extent that earnings per hour worked are almost 3.5 times greater in crop farming for export than in stock farming (see table 6).

4. SELECTED LABOUR INPUTS

It is interesting to compare labour input per hectare for some of the most important crops with the same fig-

Table 5

ECUADOR: PRODUCTIVITY OF LABOUR IN SELECTED SECTORS, MEASURED THROUGH VALUE ADDED PER ACTIVE PERSON, 1955

	Value added per active person (sucres)	*Active population (thousands of persons)*
In the economy as a whole . .	8 295	1 328
In the agricultural sector . . .	5 400	650
In the other sectors	11 015	678

SOURCE: National Economic Planning and Co-ordination Board, *Bases y directivas para programar el desarrollo económico del Ecuador, Quito,* 1958.

Table 6

ECUADOR: PRODUCTIVITY OF ACTIVE POPULATION IN THE VARIOUS BRANCHES OF AGRICULTURE, MEASURED THROUGH THE GROSS PRODUCT, 1955

	Crop farming		*Stock farming*	*Total*
	For domestic consumption	*For export*		
Active population (thousands of persons)	321.0	103.0	226.0	650.0
Productivity per active person (thousands of sucres)	4.5	13.4	3.0	5.4
Productivity per hour worked (sucres)	2.9	5.6	0.9	2.2
Value of production per hour worked (sucres)	3.3	5.8	1.1	2.6
Earnings per hour worked (sucres)	1.3	2.3	0.7	1.1

SOURCE: Research by ECLA, with the co-operation of the Ministry of Development and of the National Economic Planning and Co-ordination Board.

ures for other countries. Table 7 gives background data for Ecuador and also for Argentina, Chile, Colombia, and the United States. Broadly speaking, the rate of labour input per hectare of cultivated land in Ecuador is strikingly high. In Colombia, however, the situation is somewhat similar, for of the thirteen crops studied, three (maize, potatoes and cotton) involve more or less the same number of hours of work per hectare of cultivated area as in Ecuador. In the case of two crops (rice and bananas), Ecuador would seem to have a higher rate of labour input, while in the remainder labour input is lower in Ecuador.

This comparison does not, however, hold true of Argentina, Chile and the United States. For example, while in Ecuador 319 hours are required for the cultivation of one hectare of wheat, the figure for Chile is 202 hours per hectare, for Argentina 26 and for the United States 11. In other words, the effort required to cultivate one hectare in Ecuador is adequate to cultivate 1.6 hectares in Chile, 12 in Argentina and 29 in the United States. The differences to be observed in the cultivation of the other crops considered are much the same.

In the livestock sector, there is an equally excessive rate of labour input per head of livestock. Table 8 shows the animal inventories in Ecuador, Argentina and Colombia, in terms of cattle units, the active population employed in the livestock sector and the number of cattle units per active person. It will thus be seen that one person attends to an average of 95 units in Argentina, 14 in Colombia and 9 in Ecuador.

The high level of labour input in Ecuadorian crop farming, the practical result of which is low productivity

Table 7

ECUADOR AND SELECTED COUNTRIES: LABOUR INPUTS IN SELECTED CROPS

(Hours per hectare)

	Ecuador (1955)	*Argentina (1955)*	*Colombia (1953)*	*Chile (1948-50)*	*United States (1950-54)*
Wheat	319 —	26	342	202	11.0
Maize	521 —	66	520	427	32.0
Barley	265 —	27	324	196	14.0
Rice	1 051 +	96	649	474	36.0
Potatoes	832 =	104	860	592	167.0
Beans	479 —	153	701	432	47.0
Cotton	521 =	305	548	—	173.0
Sugar-cane[a]	416 —	512	540	—	314.0
Plantains	241 —	—	315	—	—
Bananas	536 +	—	387	—	—
Cacao	221 —	—	431	—	—
Coffee	597 —	—	653	—	—
Peanuts	786	86	—	—	96.6

SOURCES: *El desarrollo económico de la Argentina*, United Nations publication, Sales No. 1959.II.G.3, Vols. I, II, III; *The economic development of Colombia*, United Nations publication, Sales No. 1956.II.G.3; United States Department of Agriculture; *Preliminary study on the technique of programming economic development.*

[a] For sugar.

Table 8

ECUADOR, ARGENTINA AND COLOMBIA: LABOUR INPUTS IN STOCK FARMING

	Ecuador	*Colombia*	*Argentina*
Livestock inventories (thousands of cattle units)[a]	2 101	14 838	62 548
Active population employed in the livestock sector (thousands of persons)	226	1 055	656
Cattle units per active person	9	14	95

SOURCE: As for table 7.
[a] Stocks of each species have been expressed as cattle units, on the basis of the following coefficients: 1.00 for cattle and horses; 0.25 for sheep and goats and 0.20 for pigs.

nd income levels among the labour force employed in ıe sector, arises for a variety of reasons related to the ountry's economic structure. Firstly, the slow developnent of the nonagricultural sectors of the economy, by iling to create demand for labour which would necesarily be drained off from agriculture, means that a large roportion of the population is compelled to remain in griculture, working in conditions of low productivity. econdly, the high population density in the Sierra, which characterized by scant mobility and a reluctance to ıove to the coast, where external demand conditions and n abundant supply of land have given rise to dynamic gricultural expansion combined with higher productivity nd wage levels.

The high degree of concentration of agricultural holdıgs combined with their unequal size distribution is a ırther factor contributing to low productivity levels. This tuation is much more serious in the Sierra. According the 1954 agricultural census, of the 256 000 farm ıits[1] in that area, 212 000 (or 83 per cent) cover less an 5 hectares. Of this total 290 000 hectares are usable rm land (annual crops, artificial pasture, perennial crops, fallow land, etc.) and account for 34 per cent of all workable land in the Sierra. This means that each small farm has an average of only 1.3 hectares of usable farm land. At the other extreme, there are 389 farms with over 1 000 hectares (1.5 per mil of the total) which have 9.5 per cent (80 600 hectares) of the farmland with an average of 230 hectares of usable land per farm (see table 9).

The concentration and unequal distribution of land in the coastal area is also a serious problem, although of less alarming proportions. The existence of abundant land, which has been brought into cultivation in recent years under a highway construction plan connecting it with Guayaquil and the Sierra, and the fact that the population pressure is not as heavy, account for this less unfavourable situation. Farms of less than five hectares in the coastal areas represent only 47 per cent of the total, and the average cultivable area available on such farms is approximately two hectares. The 313 farms of over 1 000 hectares represent 3.7 per mil and account for 18.5 per cent of all the farmland in that part of the country.

This unsatisfactory distribution of land has very adverse effects on the general economy of the country. If it is realized that wheat, barley and maize are the most wide-spread crops in the Sierra and that their yields vary between 500 and 600 kilogrammes per hectare, the in-

[1] For the purposes of the census, a farm unit was considered "any land or lands used totally or partially for agricultural stock breeding purposes worked or operated by a producer ıo may be an individual or a company, without regard to the pe of land tenure or size of holding".

Table 9

ECUADOR: STRUCTURE OF FARMING ON THE COAST AND IN THE SIERRA

Farm size (hectares)	*Sierra*		*Coast*	
	Number of farms	*Agricultural land*[a] *(thousands of hectares)*	*Number of farms*	*Agricultural land*[a] *(thousands of hectares)*
Less than 0.9 . . .	83 714	38	8 673	5
1 — 4.9 . . .	128 439	252	30 860	73
5 — 19.9 . . .	33 013	174	24 637	197
20 — 49.9 . . .	7 722	85	11 693	212
50 — 99.9 . . .	3 594	64	4 733	155
100 — 499.9 . . .	2 368	114	3 419	281
500 — 999.9 . . .	330	39	334	83
More than 1 000 . . .	389	81	316	228
Total	*259 569*	*847*	*84 665*	*1 234*

SOURCE: Agricultural Census for 1954, tabulated by the National Economic Planning and Coordination Board.
[a] Annual crops, artificial pastures, perennial crops and fallow land.

Table 10

ECUADOR: TRACTION USED IN FARMING

Farm size (hectares)	Number of farms	Type of traction used				No information
		Animal	Mechanical	Animal and mechanical	None	
0 — 4.9 . . .	251 250	160 262	—	60	81 372	9 556
5 — 9.9 . . .	36 117	16 477	—	40	18 399	1 201
10 — 49.9 . . .	40 927	10 814	85	154	28 496	1 378
50 — 199.9 . . .	11 957	1 777	102	295	9 466	317
More than 200 . . .	3 697	762	207	381	2 271	76
Total	*343 948*	*190 092*	*394*	*930*	*140 004*	*12 528*

Source: Agricultural Census of 1954, tabulated by the National Economic Planning and Co-ordination Board.

come of the majority of the 212 000 smallholders will be seen to fluctuate between the equivalent of 650 and 800 kilogrammes of any one of those crops. This sector of the population, which has very low income levels, can hardly be considered a part of the economic life of the country, since it produces only enough to ensure its own subsistence and in no way constitutes a market for manufactured goods.

The unsatisfactory distribution of land and the labour surplus are representantive of an agriculture in which very primitive farming systems predominate and where not only improved cultivation methods but also the use of equipment are very uncommon.

As a result, Ecuadorian agriculture lacks the equipment and machinery which could help to raise labour productivity. The data collected in the 1954 census indicate that of the 344 000 farms in existence that year, 140 000 (nearly 40 per cent) had no form of traction whatsoever, which means that all work was done by hand; 190 000 had animal traction; 930 had both animal and mechanical traction and in only 394 was traction completely mechanized (see table 10).

The lack of traction equipment affected not only small farms but medium-sized and large farms as well and to an even greater extent. While 32 per cent of the farms with less than five hectares had no traction equipment at all, the figure rises to 50 per cent for farms of five to ten hectares, 70 per cent for farms of ten to fifty hectares, 80 per cent for farms of fifty to 200 hectares, and 61 per cent for farms of over 200 hectares.

On small farms, this situation may be explained by their limited size and by the scarce employment opportunities for those working them. On medium-sized and large farms, the superabundance of labour, by reducing wage levels, causes investment of capital in equipment to be anti-economic.

5. Degree of land utilization measured in terms of gross product and selected unit yields

The degree of land utilization may be determined by means of the value added per unit of area. The conclusions of such an analysis confirm the under-utilization of land in Ecuador. This is more serious in some sectors. For example, stock farming, covering about 55 per cent of the land in use, is the activity which makes the least efficient use of the soil, for the value added per hectare amounted in 1955 to only 370 sucres, while in crop farming for domestic consumption the value added amounted to 1 570 sucres and in crop farming for export to nearly 2 300 sucres (see table 11).

These low levels of efficiency may be confirmed from other indicators such as unit yields per hectare cultivated or per head of livestock. Table 12 gives background data for Ecuador, Argentina, Brazil, Chile, Colombia, Mexico and the United States. Of the twelve crops shown in that table, which are the most important in Ecuadorian agriculture, eight have yields very much lower than in the countries used as a basis for comparison.

Furthermore, it should not be forgotten that the low productivity already referred to is attributable not only to the backwardness of agriculture, but also to natural factors which can be only partially offset by the use of more advanced techniques.

Low land productivity, in addition to its effect on agricultural income levels, results in undue use of land. This will be appreciated more clearly if it is realized that if, with respect to the seven main crops (wheat, maize,

Table 11

ECUADOR: PRODUCTIVITY OF LAND IN THE MAIN SECTORS OF AGRICULTURE MEASURED THROUGH THE GROSS PRODUCT, 1955

	Crop farming		Stock farming	Total
	Domestic consumption	Export		
Area farmed (thousands of hectares) . . .	860	472	1 740	3 072
Value added (millions of sucres)	1 454	1 377	678	3 509
Value added per hectare (thousands of sucres)	1.7	2.9	0.4	1.1

Source: Estimate based on the information contained in the annex.

Table 12

COMPARISON OF AGRICULTURAL UNIT YIELD IN ECUADOR AND SELECTED COUNTRIES

(Kilogrammes per hectare)

	Ecuador[a]	*Argentina*[b]	*Colombia*[c]	*Chile*[b]	*United States*[b]
Wheat	605	1 223	1 005	1 400	1 380
Maize	635	1 712	1 443	1 770	2 785
Barley	560	1 244	1 444	1 663	1 364
Rice	1 055	3 357	1 988	2 655	3 506
Potatoes	3 600	7 160	4 917	10 050	19 030
Beans	360	1 060	562	945	1 270

	Ecuador[a]	*Brazil*[c]	*Colombia*[c]	*United States*[b]	*Mexico*[c]
Cotton	120	144	330	455	496
Sugar-cane[d]	60 700	40 400	46 800	52 900	54 930
Plantains	11 390	—	4 690	—	11 100
Bananas	12 140	27 930	7 400	—	9 570
Cacao	200	404	389	—	365
Coffee	380	362	633	—	393

SOURCES: National Economic Planning and Co-ordination Board, and official country statistics on crop and livestock production.
[a] Annual average 1954-57.
[b] Annual average 1955-57.
[c] Annual average 1956-58.
[d] For sugar.

Table 13

ECUADOR AND SELECTED COUNTRIES: LIVESTOCK PRODUCTIVITY MEASURED BY THE RATE OF SLAUGHTER AND THE MEAT YIELD PER HEAD OF LIVESTOCK AND PER HEAD SLAUGHTERED

	Ecuador[a]	*Argentina*[b]	*Colombia*[c]	*United States*[d]
Rate of slaughter				
Cattle	18.4	26.1	11.5	41.5
Sheep and goats	19.2	22.4	20.0	51.4
Pigs	27.8	69.5	50.0	156.0
Meat yield per head slaughtered (kilogrammes)				
Cattle	149.0	209.4	198.5	178.0
Sheep and goats	10.9	17.5	18.0	20.6
Pigs	37.4	77.8	60.0	61.0
Meat yield per head of livestock (kilogrammes)				
Cattle	28.6	54.6	22.9	73.8
Sheep and goats	1.6	3.9	3.6	10.6
Pigs	16.2	54.1	30.0	94.2
Miscellaneous production				
Wool per sheep (kilogrammes)	0.560	3.97	1.72	4.38
Milk per cow (litres)	1 131	1 000	939	2 720

SOURCES: National Economic Planning and Co-ordination Board, *Bases y directivas para programar el desarrollo económico del Ecuador, op. cit.; The economic development of Colombia, op. cit.; El desarrollo económico de la Argentina, op cit.;* United States Department of Agriculture.
[a] Annual average 1954-57.
[b] Annual average 1956-57.
[c] 1953.
[d] Annual average 1955-57.

barley, rice, potatoes, beans and cotton) which in the three-year period 1954-57 covered an annual average of 600 000 hectares in Ecuador, the same yields per hectare had been obtained as in Argentina, crops of the same size would have been obtained by using only 250 000 hectares of land, thereby leaving 350 000 hectares free for other crops. With yields equivalent to those of the United States, the area required would have been only 185 000 hectares or 30 per cent of the area used in Ecuador.

These low yields cannot be said to result from unsuitable ecological conditions alone. Although there are certain limiting factors in a number of areas — e.g., excess altitude in the Sierra or inadequate drainage on the coast — the basic explanation must be sought in the scant use of improved techniques.

Low yields are also prevalent in stock farming (see table 13). Cattle farming in Ecuador compares favourably with Colombia but not with countries such as Argentina and the United States. To the low rate of slaughter (only 18.4 per cent in Ecuador as against 26 per cent in Argentina and 42 per cent in the United States) must be added the relatively low yield per head slaughtered; this results in meat production per head of cattle of 29 kg in Ecuador as against 55 in Argentina and 74 in the United States. This means that, if Argentina and the United States had the same cattle population as Ecuador, they would obtain 2 and 2.5 times more meat respectively than does Ecuador.

Productivity rates are even lower for sheep, and in this respect there are substantial differences, even compared with Colombia. While in Ecuador only 1.6 kilogrammes of meat are obtained per head of sheep, the figures for Argentina and Colombia are between 3.6 and 3.9 kg and for the United States about 11. The output of wool is also low: scarcely 0.5 kg per head, as compared with 1.8 kg in Colombia, 4 in Argentina and 4.4 in the United States.

6. Capital in the agricultural sector

The modernization of traditional work methods and the consequent increase in the use of available resources are closely related to the degree of capital formation in the agricultural sector. For example, the establishment or improvement of irrigation, the fencing of pasture land, the substitution of natural pasture by artificial grasslands, the building of sheds and silos, the introduction of high-grade breeding animals, the acquisition of machinery, the use of fertilizers, etc., require investments in fixed improvements or available circulating capital with which to finance the purchase of the greater inputs which a productive process based on modern techniques requires. In these circumstances, not only will production per unit of area increase, but labour requirements will decline with a consequent increase in productivity.

An estimate of the assets of Ecuadorian agriculture in 1955 gives a figure for total investment (expressed in terms of replacement costs at 1955 prices) of approximately 7 700 million sucres, or 28 per cent of the country's total investment.

A comparison between the amount of capital invested in the various sectors of the Ecuadorian economy and the labour force employed in those sectors shows that agriculture is the least capitalized; investment per active person is 11 800 sucres as compared with 18 000 in the industrial sector and 53 000 in the other sectors (see table 14).

The break-down of agricultural assets shows the small part played by investment designed to ensure more efficient agricultural development. Some 16 per cent of assets is accounted for by investment in soil improvement (especially clearing and irrigation), 15 per cent in housing and 37 per cent in livestock inventories. This means that 68 per cent of the total consists of investment in fixed capital and livestock inventories. Investments under the heading of capital for development or for improve-

Table 14

ECUADOR: STOCK OF CAPITAL AND PRODUCT-CAPITAL RATIO IN THE PRINCIPAL SECTORS OF THE ECONOMY

(At 1955 prices)

Sector	*Capital (millions of sucres)*	*Percentage*	*Gross product (millions of sucres)*	*Percentage*	*Product-capital ratio (Percentage)*
Total	*28 029*	*100*	*10 976*	*100*	*0.39*
Agriculture	7 678	28	3 509	32	0.46
Industry[a]	5 417	19	2 492	23	0.46
Other sectors . . .	14 934	53	4 975	45	0.33
	Per active person (thousands of sucres)				
Total	*21.1*		*8.3*		
Agriculture	11.8		5.4		
Industry[a]	17.9		8.3		
Other sectors . . .	53.0		13.2		

Sources: For the agricultural sector, those indicated in the annex; for the others, the National Economic Planning and Co-ordination Board, *Bases y directivas para programar el desarrollo económico del Ecuador, op. cit.* Except in the case of the agricultural sector, the other data on capital should be regarded as provisional and are cited here merely to give an approximate idea of their order of magnitude.

[a] Manufacturing industry, the extractive industry and construction.

Table 15

ECUADOR: DISTRIBUTION OF THE STOCK OF CAPITAL IN THE MAIN BRANCHES OF THE AGRICULTURAL SECTOR

	Agriculture		*Stock farming*	*Total*
	Domestic consumption	*Export*		
. *Total stock of capital invested*	*2 058*	*1 419*	*4 201*	*7 678*
(1) *Fixed capital*	*1 520*	*1 080*	*978*	*3 578*
Land improvement	545	208	482	1 235
Buildings, installations and fences	814	339	282	1 435
Plantations	161	533	214	908
(2) *Movable capital*	*72*	*27*	*2 873*	*2 972*
Livestock inventories	—	—	2 860	2 860
Agricultural equipment	72	27	13	112
(3) *Circulating capital*	*466*	*312*	*350*	*1 128*
. *Area farmed* (thousands of hectares)	*860*	*472*	*1 740*	*3 072*
Capital per hectare (thousands of sucres)	2.4	3.0	2.4	2.5
. *Active population* (thousands of persons)	*321*	*103*	*226*	*650*
Investment per active person employed (thousands of sucres)				
Total	*6.4*	*13.9*	*18.6*	*11.8*
Buildings, installations and fences	2.5	3.0	1.2	2.2
Land improvement	1.7	2.0	2.1	1.9
Agricultural equipment	0.2	0.3	0.06	0.2
. *Product-capital ratio*	*0.72*	*0.97*	*0.17*	*0.46*

OURCES: See annex.

ients (storage facilities, sheds, fences and other facili-es), which make for better land and labour utilization, ccount for only very small percentages. Thus, only 1.7 er cent of total agricultural assets has been invested in other buildings" (not intended for housing); 0.2 per cent installations of various kinds, and 3 per cent in fencing nd agricultural equipment. Investments in plantations are rger (11.8 per cent), since banana, plantain, cacao and offee plantations occupy an important place in Ecua-orian agriculture.

The product-capital ratio for the whole agricultural ector is 0.46, a figure which is considerably exceeded y crop farming for export (0.97) and crop farming for nternal consumption (0.72). Stock farming has a very w product-capital ratio (0.17) and is the sector of cuadorian agriculture which makes the most inefficient se of capital. It is also the sector with the widest dis-arity in the break-down of investment. Livestock inven-ries, soil improvement and housing account for nearly 5 per cent of all investment in the livestock sector, aving only 15 per cent for fencing, pasture, sheds, rculating capital and agricultural equipment. Such a arked disparity in investment prevents the use of im-roved techniques in stock farming and is conducive to w productivity.

In agricultural systems where a low level of technology revails, the product-capital ratio will usually tend to e high. More intensive capital formation in stock farm-ng for export and for domestic consumption, by substan-ally raising the yield of land and the efficiency of agri-ultural labour, would doubtless reduce the present high oefficients and make for improved levels of income and bour remuneration. Table 15 provides further details garding the distribution of capital between the different ectors.

7. Labour productivity measured in physical terms

Over-employment of labour and poor land yields reduce the productivity figure for the Ecuadorian agricultural worker to a very low level. This explains the extreme poverty of the agricultural sector, particularly in the Sierra, where the opposing trends of labour and yield are much more extreme.

Figures on labour productivity, expressed in terms of the crop product per hour of work for the principal crops in Ecuador and selected countries, are given in table 16. They provide further proof of the exceptionally low levels of productivity in Ecuador. For instance, one hour of work in wheat growing produces 1.9 kg of grain as against 2.9 kg in Colombia, 6.9 kg in Chile, 47 kg in Argentina and 126 kg in the United States. To a greater or lesser extent, this situation repeats itself in the case of the other grains, tubers and legumes that prevail in the Sierra.

The situation is much the same as that of Colombia with respect to some of the coastal crops (cacao and coffee). In sugar-cane, plantain and banana growing labour productivity is higher in Ecuador, mainly because of higher land yield.

From the foregoing it is obvious that the extremely low level of productivity is one of the most serious problems facing Ecuadorian agriculture, and moreover, has a highly adverse effect on the country's over-all economy. Because of it the wages and living conditions of nearly half the population of Ecuador, for whom agriculture provides a means of livelihood, are equally inadequate.

As already indicated, two factors are responsible for the continued existence of these conditions: (*a*) an unduly large labour supply, which leads to excess labour employment per hectare; and (*b*) low land yields. The

Table 16

ECUADOR AND SELECTED COUNTRIES: LABOUR PRODUCTIVITY IN VARIOUS CROPS

(Kilogrammes per hour of work)

	Ecuador	*Argentina*	*Colombia*	*Chile*	*United States*
Wheat	1.9	47.0	2.9	6.9	125.5
Maize	1.2	25.9	2.8	4.1	87.0
Barley	2.1	46.0	4.5	8.5	97.4
Rice	1.0	35.0	3.0	5.6	97.4
Potatoes	4.3	68.8	5.7	17.0	114.0
Beans	0.8	6.9	0.8	2.2	27.1
Cotton	0.2	0.7	0.6	—	2.6
Sugar-cane	146.0	62.0	86.7	—	168.0
Plantains	47.0	—	14.9	—	—
Bananas	23.0	—	19.1	—	—
Cacao	0.9	—	0.9	—	—
Coffee	0.6	—	1.0	—	—

SOURCES: As in tables 7 and 12.

solution to the first problem does not lie within the sector itself, for it depends on the country's prospects of economic development. If it does develop, employment opportunities would increase and the surplus rural population could thus be absorbed. Slow as it is, this would be the long-term solution.

The problem of low land yield should also be tackled, either simultaneously or separately. There is considerable opportunity for improvement in this respect. Excellent results may be obtained in a fairly short time and with little capital investment, particularly because of the low levels of technology that prevail. It is relatively easy to propagate the use of improved seeds, introduce some degree of fertilizer application, improve the health conditions and diet of livestock and replace natural grassland by artificial pastures, etc.

Moreover, it should not be forgotten that, in view of the agricultural sector's importance to the economy of Ecuador because of its contribution to the gross product, the number of persons it employs and the important part it plays in export trade, the prospects of over-all economic development largely depend on its future evolution. Any increase in agricultural production, accompanied by a substantial rise in the sector's productivity and income, will have a favorable effect through import substitution and the increase in exportable surpluses. This, in turn, will improve the country's capacity to import capital goods. In addition, a rise in the rural population's income levels would enable them to begin to share or to increase their share in the demand for agricultural and non-agricultural goods and services.

Annex

METHOD USED TO DETERMINE INPUTS AND ASSETS IN ECUADORIAN AGRICULTURE IN 1955

Although no claim is made that the calculations worked out in the present study are or can be final, and although certain deficiencies affect the validity of their results, it seems worth while to describe the method used in reaching the conclusions formulated and thus to provide a basis for their improvement in subsequent studies and research. The lack of statistical data is perhaps the chief of the shortcomings in question, and constitutes a drawback which is unfortunately not confined to the agricultural sector or peculiar to Ecuador. To fill up the lacunae, it was necessary to resort to a variety of methods and systems, which included scouring the whole country; organizing in the provinces, with the co-operation of the experts stationed there, surveys and research designed to obtain such important background data as investment costs in respect of specific improvements, employment of labour, value of livestock, years of useful life of the various kinds of capital goods, etc.; and talking to farmers with a view to discovering the characteristics of the environment, the special features of their work, and, in general, the problems affecting agriculture. The purpose of all this was to arrive at a reasonable interpretation of such numerical data as proved to be available.

I. DETERMINATION OF AGRICULTURAL INPUTS

In the year 1955, the value of agricultural inputs, broken down by materials, services and taxes, amounted to about 2 600 million sucres, including labour (see table 17).

The estimate was based on 1955 prices. When possible, data for the period 1948-58 were taken into account so as to obtain a general picture of the lines along which the process of introducing more advanced farm techniques had developed in certain respects. Most inputs are included. Some of those omitted — pesticides and weedkillers, for instance, which were left out because it was impossible to distinguish between those used for agricultural and for non-agricultural purposes — although not without importance, make little difference to the final results of the research.

In the following pages a detailed account of the methods used to compute inputs and capital is given.

A. MATERIALS

1. *Seeds*

The use of seed was determined on the basis of the area sown to each crop. The quantity used per hectare was established in

Table 17

ECUADOR: SUMMARY OF INPUTS IN THE AGRICULTURAL SECTOR, 1955

(Millions of sucres)

Total imputs	*2 588*
A. *Materials*	*408*
Seed	112
Fertilizers and soil conditioners	23
Animal feeds	192
Animal vaccines and medicaments	4
Fuels and lubricants	15
Sacks and bags	62
B. *Services*	*2 165*
Salaries and wages	1 764
Maintenance	69
Amortization	266
Interest and commissions	66
C. *Taxation*	*15*
Real estate tax	15

SOURCE: Tables 18-29 inclusive.

accordance with data supplied by the Ministry of Development, the Faculty of Agronomics and a large number of farmers consulted throughout the country. For many crops, statistics record the area under seed and the area harvested. In these cases it was the former that was adopted for the purposes of the calculation. The figure for the area harvested was used when no other was available.

The method of calculation was different in the case of orchards and plantations and, generally speaking, crops with more than a year of productive life. Thus, for example, in order to determine the use of slips in sugar-cane growing, the increase in the area sown to cane in 1955 in relation to the immediately preceding season was taken into account. Allowance then had to be made for the area that must have been planted to replace old cane plantations which were no longer productive. Thus, on the hypothesis of a productive life of 10 years as an average for the country as a whole, and given an area of 49 700 hectares under cane, new plantations totalling 4 970 hectares were assumed to have been formed to replace an equivalent number that had dropped out of production. In these circumstances, the recently-planted areas for which slips were required would seem to have been the following:

	Hectares
Net increase in plantings	330
Replacement of old plantings	4 970
	5 300

The value of the slips was assessed on the assumption that about one hectare of sugar-cane affords plantings for 5 hectares.

In the case of coffee, cacao and various types of fruit-tree, a similar procedure was adopted. For coffee, the productive life of the plantations was assumed to be 40 years. The area planted worked out as follows:

	Hectares
Net increase in plantings	3 090
Replacement of old plantings	2 670
	5 760

As regards cacao, a special situation seems to have existed in 1955. According to the available statistical data, there was a net reduction of plantations amounting to 5 000 hectares, a total very close to that of the areas which ceased to produce on account of their age. In fact, the position was as follows:

	Hectares
Area under plantings in 1954	201 500
Area under plantings in 1955	196 500
Decrease in 1955	5 000

If a productive life of 40 years is postulated for cacao trees, this result differs very little from the area represented by the depreciated plantations (2.5 per cent of 201 500=5 300 hectares), In other words, it may be assumed that in the year in question there were no new plantings and no plants were used.[1]

For bananas and plantains also, the net increase in plantings was taken into account together with the areas that had to be replanted on account of ageing, a productive life of 10 years being estimated for plantains and of 8 years for bananas. The following was the relevant calculation:

	Plantains (hectares)	*Bananas (hectares)*
Net increase in plantings	8 940	5 210
Replacement of old plantings	5 130	20 650
	14 070	25 860

As regards miscellaneous fruit-trees — apples, pears, custard apples *(chirimoyas)*, etc. — there were no data available on which to base an estimate of the net increment in plantings. For this reason, only the area presumably planted in order to rehabilitate old orchards was estimated.

The results of the calculation relating to use of plants and seed are assembled in table 18; the total figure is 112.2 million sucres, of which imported seed account for 1.6 million.

2. *Fertilizers and soil conditioners*

Domestically-produced fertilizers and soil conditioners, i.e., phosphated guano and lime, used by agriculture in Ecuador are in relatively short supply. Production statistics afford the pertinent background data.

Thus, fertilizers used in Ecuador's crop farming sector are mainly of foreign origin. Table 19 shows the volumes of the various types imported from 1948 to 1958 (inclusive), and table 20, their f.o.b. prices per ton, with the surcharges under the head of maritime and internal freight charges, insurance, tariff duties, consular fees, taxes and importers' and distributors' profits, on the basis of which were determined the 1955 prices at farm paid by growers for the various fertilizers.

An estimate was next made of the quantum (at 1955 prices) of total consumption of both domestically-produced and imported fertilizers during the 11-year period 1948-58 (see table 21). As no data were available on the fertilizers left in the hands of farmers, importers or dealers at the close of each year, the total amount imported or produced was assumed to have been used.

3. *Animal feeds*

Imported feeds are relatively limited in quantity, consisting mainly of concentrates for poultry, and reaching in 1955 an approximate total value of 2.6 million sucres. The following are the most important of those of domestic origin:

(a) *Oilcake*

The volume of oilcake was calculated on the basis of data supplied by the oil industry, which uses cotton and sesame seed, copra and coquitos as raw materials.

(b) *Brewery residues*

Data on brewery residues were furnished by the industry concerned. In this case it was estimated that about 7.5 per cent of

[1] In all likelihood there were a few new plantings in that year. Since they cannot be quantitatively assessed for want of data, it was felt preferable to rely upon the available statistics used here.

Table 18

ECUADOR: USE OF PLANTS AND SEED, 1955

	Area sown or harvested (thousands of hectares)	*Seed (kilogrammes per hectare)*	*Total (tons)*	*Price per ton (sucres at 1955 prices)*	*Total value (thousands of sucres at 1955 prices)*
Crops					
Maize	248.7	35	8 704.5	1 433	12 473.5
Beans	34.2	70	2 394.0	3 805	9 109.2
Barley	135.3	110	14 883.0	1 342	19 973.0
Wheat	66.7	105	7 004.0	1 740	12 187.0
Potatoes	34.4	1 500	51 600.0	1 120	5 779.2
Peas	18.5	40	740.0	2 320	1 716.8
Lima beans	19.4	50	970.0	1 643	1 593.7
Lentils	8.2	35	287.0	3 360	964.3
Rice	105.5	40	4 200.0	1 500	6 300.0
Bananas	25.9	400[a]	—	20	518.0
Plantains	14.1	400[a]	—	20	282.0
Sugar-cane	5.3	15 000	79 500.0	40	3 180.0
Miscellaneous tubers	11.1		—	20	222.0
Yucca	15.8		—	24	379.2
Other grains	28.2	100	2 820.0	1 500	4 230.0
Cotton	24.0	40	960.0	1 000	960.0
Peanuts	4.0	70	280.0	4 550	1 274.0
Oats	3.0	100	300.0	2 780	8 340.0
Castor-oil plants	11.5	5	58.0	1 180	68.4
Coffee	5.7	1 000[b]	—	1 000[c]	5 700.0
Fruit (miscellaneous)	1.1	100[b]	—	200	220.0
Miscellaneous crops[d]	—	—	—	—	1 583.5
Artificial pastures					
Sierra	17.9	35	626.0	20 000	12 520.0
Coast	27.0	—	—	60	1 620.0
Total					111 193.8
Imported					1 604.5
Domestically-produced					109 589.3

SOURCE: Data supplied by the Ministry of Development, the School of Agronomics of the *Universidad Central*, farmers and experts.
[a] Slips.
[b] Plants.
[c] Sucres per hectare.
[d] Sesame seed, tobacco, vegetables, etc.

Table 19

ECUADOR: PRICES OF VARIOUS TYPES OF FERTILIZER, 1955

	Fob *price (sucres per ton)*	*Surcharges[a] (percentage)*	*Prices paid by farmers (sucres per ton)*
Imported			
Nitrogenous fertilizers (mineral or chemical)	1 422	78.0	2 531
Organic fertilizers	780	96.4	1 532
Miscellaneous phosphated fertilizers	791	111.4	1 672
Natural sodium nitrate	953	85.6	1 769
Raw salts of potassium	1 054	83.3	1 932
Other potassic fertilizers	709	109.8	1 487
Fertilizer compounds	1 932	77.2	3 424
Organic fertilizers not normally applied	1 060	68.8	1 789
Chemical fertilizers not normally applied	1 109	68.0	1 863
Domestically-produced			
Lime	—	—	547.9
Phosphated guano	—	—	855.2

SOURCE: Foreign trade yearbooks and National Economic Planning and Co-ordination Board.
[a] Maritime freight charges, insurance, tariff duties and consular fees, tax rates, internal freight charges, and importers' and distributors' profits.

ECUADOR: CONSUMPTION OF FERTILIZERS, 1948-58

(Tons)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Imported											
Nitrogenous fertilizers (mineral or chemical)	—	—	—	—	2.0	251.1	1 189.2	1 407.7	2 148.7	3 624.0	3 396.3
Organic fertilizers	—	—	—	—	—	59.0	208.0	30.0	503.5	9.2	3.0
Miscellaneous phosphated fertilizers	3.2	188.3	37.2	192.8	408.6	242.5	1 210.4	171.2	393.3	570.6	357.6
Natural sodium nitrate	—	—	—	1 828.6	521.0	1 150.5	500.0	—	—	—	—
Raw salts of potassium	—	—	—	275.4	450.0	176.0	—	50.0	—	—	—
Other potassic fertilizers	—	183.6	32.2	250.9	9.9	196.6	195.1	173.9	277.7	443.0	438.3
Fertilizer compounds	2.3	—	—	43.9	3.9	326.7	2 752.9	5 219.5	5 556.4	8 602.1	8 104.1
Fertilizers not normally applied	—	—	—	—	—	—	127.0	4.6	4.9	0.1	54.7
Chemical fertilizers not normally applied	1.9	400.9	941.8	395.6	900.3	2 465.2	989.6	—	—	—	—
Domestically-produced											
Lime	460.0	462.5	474.6	535.0	398.8	460.0	1 260.5	969.2	352.9	359.1	—
Phosphated guano	854.5	1 967.1	644.0	1 199.7	945.5	649.0	446.8	374.4	84.4	100.1	—

SOURCE: Data supplied by Ecuadorian farmers and technical experts.

Table 21

ECUADOR: CONSUMPTION OF FERTILIZERS, 1948-58

(Thousands of sucres at 1955 prices)

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958
Imported	*17*	*1 335*	*1 865*	*5 349*	*4 184*	*9 510*	*18 025*	*22 131*	*26 314*	*40 254*	*37 697*
Nitrogenous fertilizers (mineral or chemical)	—	—	—	—	5	635	3 010	3 563	5 438	9 172	8 596
Organic fertilizers	—	—	—	—	—	90	319	46	771	14	5
Miscellaneous phosphated fertilizers	5	315	62	322	683	406	2 024	286	658	954	598
Natural sodium nitrate	—	—	—	3 235	922	2 035	885		—	—	—
Raw salts of potassium	—	—	—	532	869	340	—	97	—	—	—
Other potassic fertilizers	—	273	48	373	15	292	290	259	413	659	652
Fertilizer compounds	8	—	—	150	13	1 119	9 426	17 872	19 025	29 455	27 748
Organic fertilizers not normally applied		—	—	—	—	—	227	8	9	—	98
Chemical fertilizers not normally applied	4	747	1 755	737	1 677	4 593	1 844	—	—	—	—
Domestically-produced	*991*	*1 935*	*. 811*	*1 319*	*1 027*	*807*	*1 073*	*851*	*266*	*283*	—
Lime	252	253	260	293	218	252	691	531	193	197	—
Phosphated guano	739	1 682	551	1 026	809	555	382	320	72	86	—
Total	*1 008*	*3 270*	*2 676*	*6 668*	*5 211*	*10 317*	*19 098*	*22 982*	*26 580*	*40 537*	—

SOURCE: Foreign trade statistics.

the barley received by brewers consists of small or split grains which are used for feeding livestock. Moreover, the equivalent of 5 per cent of the initial weight of the barley is obtained as a final residue of the industrial process, and serves the same purpose.

(c) *Bananas and plantains*

These are a very important fodder resource. As regards bananas, the Ecuadorian Banana-Growers' Association (*Asociación Nacional de Bananeros del Ecuador* — ANBE) has prepared estimates of the various uses to which this fruit is put, on the basis of which the proportion consumed by livestock can be fairly accurately calculated. The break-down for 1955 was a follows:

	ANBE estimates of consumption and losses	*Estimated consumption of livestock sector*
	(Millions of stems)	
Export	23.8	—
Domestic consumption (population)	6.2	—
Domestic consumption (livestock sector)	5.5	5.5
Domestic consumption (industry)	3.5	—
Total	39.0	5.5
Discarded at ports of loading	3.0[a]	—
Discarded on farms	3.0	1.2
Losses due to lack of communications	3.0	1.8
Windfall losses	1.5	0.6
Losses due to pests and diseases	19.4	3.8
Total	29.9	7.4
Domestic production	68.9	
Consumption as fodder		12.9

[a] It is estimated that 50 per cent of the fruit discarded at ports of loading is used for human consumption. This would raise domestic consumption to about 7.8 million stems.

On the basis of the ANRE estimates, it was calculated that fruit discarded at the ports of loading was not used for fodder; that 40 per cent of the bananas rejected on the producer farms themselves was fed to livestock; and that of the losses on the farms due to lack of communications, windfalls, and pests and diseases, 60 per cent, 40 per cent and 20 per cent respectively were put to the same use. In these circumstances it would seem that about 13 millions stems of bananas were used as fodder in the Ecuadorian livestock sector.

With respect to plantains, estimates prepared with the collaboration of experts from the Ministry of Development suggested that about 20 per cent was used as fodder.

(d) *Miscellaneous grains*

Consumption of certain types of grain — barley and maize — as animal feeds was also estimated on the basis of the knowledge and experience of Ecuadorian exports. It was considered that about 31 per cent of the output of maize[2] and 10 per cent of the barley produced might reasonably be assumed to have been used for fodder.

(e) *Tubers, etc.*

Consumption of certain tubers and of sugar-cane as fodder was quantitatively assessed by the same method. It was estimated that 5 per cent of the output of potatoes and yucca, 7 per cent of production of other tubers and 10 per cent of the sugar-cane produced were used for this purpose. Aggregate fodder consumption for 1955 is shown in table 22, and totals about 192 million sucres.

4. *Animal vaccines and medicaments*

The vaccines and medicaments used in the livestock sector also come from both domestic and foreign sources. Data for the consumption of domestic products were supplied by the laboratories themselves. Those for imports were obtained from foreign trade statistics. In both cases, the data assembled in table 23, which cover the period 1949-1958, express the value of these articles at each year's current prices, for which reason the figures do not exactly reflect the changes in the volume of consumption. An estimate at 1955 prices, calculated as for other inputs, presents certain difficulties, owing to the large quantity of specifics and other items involved. However, the current value of these inputs is very much the same as their quantum, since data provided by the domestic industry show that prices scarcely altered at all (see table 23).

[2] This figure represents 90 per cent of the maize produced in coastal districts and 20 per cent of production in the Sierra.

Table 22

ECUADOR: CONSUMPTION OF CONCENTRATES AND OTHER ANIMAL FEEDS, 1955

	Thousands of tons	*Millions of sucres*
1. *Domestically-produced*		*188.9*
(a) *Oilcake*[a]	11.0	8.9
(b) *Brewery residues*		
Split grain and by-products	0.9	0.7
(c) *Fruit*		
Bananas	129.0	25.8
Plantains	101.2	20.0
(d) *Miscellaneous grains*		
Maize	50.0	93.2
Barley	7.8	12.4
(e) *Tubers, etc.*		
Potatoes	8.2	12.0
Yucca	1.5	0.8
Other tubers	2.0	1.0
Sugar-cane	224.0	14.3
2. *Imported*		*2.6*
Concentrates	0.5	2.6
Total		*191.5*

Source: Estimates prepared by the Ministry of Development, and foreign trade statistics.

[a] Coquitos, 4 631 tons; sesame, 300 tons; cotton, 4 228 tons; and copra, 1 852 tons.

5. *Fuels and lubricants*

The use of fuels and lubricants had to be estimated by indirect methods, since no direct information was available. When agricultural assets were determined, the tractor inventory, broken down by diesel and petrol tractors, had been established. It was thus known that in 1955 approximately 1 337 tractors had been in operation, of which 735 were fitted with caterpillar tracks and 602 with wheels. From the data collected it was calculated that the former all ran on diesel and that of the latter 90 per cent were petrol and 10 per cent diesel tractors. Again, most of the caterpillar tractors were in service in the coastal areas, where on account of weather conditions they worked fewer days in the year than in the Sierra. Here the wheel tractor is more commonly used.

On the basis of data furnished by the farmers and machinery distributors themselves, it can be estimated that on the coast tractors work 8 months in the year, with an approximate total of 175 days (monthly totals of 26 days for 5 months and of 15 days for 3 months) the average day's work being 8 hours and consumption of diesel oil 7 litres per hour. All the wheel tractors (602) would seem to be in service in the Sierra, working on an average 280 eight-hour days in the year (monthly totals of 25 days for 8 months and 15 days for 4 months). Of these tractors, 90 per cent consume petrol at a rate of about 6 litres per hour, and the remaining 10 per cent diesel oil, at the same yield levels as were mentioned above.

Table 23

CUADOR: CONSUMPTION OF ANIMAL VACCINES AND MEDICAMENTS 1949-58

(Millions of sucres)

Year	*Imported*	*Domestically-produced*	*Total*
949	0.6	0.4	1.0
950	0.8	0.5	1.3
951	0.8	0.5	1.3
952	0.9	0.8	1.7
953	1.2	0.8	2.0
954	2.8	0.8	3.6
955	2.7	0.9	3.6
956	0.8	1.0	1.8
957	0.7	1.3	2.0
958	0.7	1.5	2.2

OURCE: Foreign trade statistics and statistical data supplied by Ecuadorian laboratories.

In order to quantify consumption of lubricants, it was assumed at in the case of these tractors the oil has to be changed every 0 hours. The results of these calculations are presented in table , and suggest that, in 1955, consumption of fuel and lubricants r tractors amounted to 15.4 million sucres.

It was not possible to estimate the amount of fuel consumed transport for farmers and in bringing inputs to the farm. onsumption of fuel in the transport of produce from the farm the marketing centres is not taken into account, because the lue of production was estimated on the assumption that it was ld at the farm.

6. *Packing materials and cordage*

The packing materials and cordage used in agriculture are anufactured with domestic and imported raw materials. Burlap d jute are imported for the manufacture of sacks, cotton rope d cord, hemp thread, rope and cord, and flax. No data are ailable to show the proportion of these materials intended for e packing of agricultural produce. Agave is used in the manu- cture of the greater part of domestically-produced sacks. Agave tput statistics are, however, incomplete, particularly in view of e fact that agave production is an artisan industry. For these asons, it was thought preferable to determine the amount of ave used on the basis of agave production data. For each pro- ct an estimate was made of the amount of the crop that is cked, account being taken of the capacity of the sacks and gs normally used, the number of times they are used in a year and their useful life. No account was taken of sacks or bags used for sugar as these are a product of the industrial sector, nor of the polyethelene containers used for banana exports as the costs of these are financed by the exporters.

The total cost of sacks and bags in 1955 amounted to approximately 62 million sucres (see table 25).

B. Services

1. *Inputs and the remuneration of labour*

No background information was available on which to base a quantitative estimate of the remuneration of labour or the input it represented. The only estimates available related to the rural active population. For this reason, a country-wide survey had to be carried out with the co-operation of experts working in the provinces and well acquainted with their area, in order to collect more accurate data on labour inputs as between the various crops.

This work was carried out in all the provinces of Ecuador and in all of them information was collected regarding each individual crop, provided it accounted for not less than 5 per cent of national output.

In the case of each crop, distinctions were drawn between the different work systems which resulted in varying types of labour input, calculations later being made of the approximate areas worked under each system. As the main factors contributing to the diversification of work systems are size and type of land tenure, these were taken into account in calculating the percentage worked under each system. This information, for each of the provinces and for the main crops, was provided by the agricultural census of 1954. Wheat cultivation in the province of Pichincha may serve as an example of the methods used. Here, it was discovered that three methods of work were common: one, completely mechanized and covering approximately 50 per cent of the area under seed; a second, based on the use of animal traction for all agricultural operations, including thrashing, and covering approximately 20 per cent of the area under seed; and a third, totally manual, used in small farms cultivating more or less 30 per cent of the area under wheat. While in the above example three methods of work were used, in the case of other crops only one or sometimes two methods were applied. A specially prepared form was used to obtain details for each work system and each stage of the cultivation process, from the preparation of the soil to the harvesting and storing of the product on the farm or loading for transport elsewhere. In addition to a description of each type of work, details were given regarding the implements used, their characteristics, the number of persons operating them, the type of traction, the daily work capacity, normal working hours in the area and remuneration of labour

Table 24

ECUADOR: CONSUMPTION OF FUELS AND LUBRICANTS IN THE CROP SECTOR, 1955

	Consumption of fuel		*Price per litre (sucres)*	*Total (millions of sucres)*
	Per tractor (litres)	*Total (thousands of litres)*		
Fuel for tractors				*13.8*
735 caterpillar tractors (diesel) . .	10 880	8 232	0.75	6.2
62 wheeled tractors (diesel) . . .	14 560	903	0.75	0.7
540 wheeled tractors (petrol) . . .	12 480	6 739	1.03	6.9
Lubricants for tractors				*1.6*
735 caterpillar tractors	95	68.9	10.00	0.7
602 wheeled tractors.	150	90.3	10.00	0.9
Total				*15.4*

SOURCE: Estimates based on data supplied by Ecuadorian farmers and experts.

Table 25

ECUADOR: VOLUME AND VALUE OF SACKS, BAGS, ETC., USED IN THE CROP SECTOR, 1955

Commodity	Production (thousands of tons)		Capacity of sacks and bags (kilogrammes)		Total number of sacks and bags required (thousands of units)	Duration (years)	Number of new sacks and bags per annum (thousands of units)	Value of sacks and bags	
	Harvested	*Packed*	*For each purpose*	*Annual total*				*Unit value (sucres)*	*Total value (millions of sucres)*
Wheat	41.8	35.0	80	160	219	3	73	15	1.1
Barley	78.7	60.0	80	160	375	3	125	15	1.9
Maize	160.6	120.0	80	120	1 000	3	333	15	5.0
Oats	1.7	1.0	80	100	10	3	3	15	0.1
Potatoes	164.0	100.0	70	140	714	2	357	10	3.6
Yucca	29.0	20.0	70	140	143	2	72	10	0.7
Beans	13.4	10.0	80	160	63	3	21	15	0.3
Lima beans	15.1	12.0	80	140	86	3	29	15	0.4
Lentils.	9.5	8.0	80	140	57	3	19	15	0.3
Peanuts	1.8	1.8	60	120	15	3	5	15	0.1
Peas.	6.6	5.0	80	140	36	3	12	15	0.2
Other tubers	28.3	20.0	70	140	143	2	72	10	0.7
Plantains	558.7	—	—			—		—	—
Sugar	671.0	—	—	—	—	—	—	—	—
Panela	102.0	95.0	46	80	1 188	2	594	8	4.8
Fruit and vegetables .	505.6	455.0	40	160	2 844	1	2 844	10	28.4
Rice.	114.9	110.0	46	180	550	3	183	15	2.7
Bananas[a].	1 768.8	—	—			—			
Coffee	35.6	34.0	46	80	340	3	113	15	1.7
Cacao	28.3	28.3	46	46	615	3	205	15	3.1
Castor-oil plants . . .	16.1	16.1	46	80	201	3	67	15	1.0
Tobacco	1.6	1.4	30	50	28	3	9	15	0.1
Cotton	8.6	8.6	46	70	124	3	41	15	0.6
Miscellaneous.	—	—	—	—	—	—	100	12	1.2
Total									*57.9*
Cordage									4.0
Grand Total									*61.9*

SOURCE: Estimates prepared in collaboration with various Ecuadorian experts.

[a] Bananas for export are put up in polyethlene bags. Growers deliver the fruit at farm packed for transport in vegetation from the plantations themselves. Consequently, this material is not taken into account as a crop sector input.

Table 26

ECUADOR: INPUT AND VALUE OF HUMAN LABOUR IN THE CROP SECTOR, 1955

Commodity	Area harvested (thousands of hectares)	Manpower input		Value of human labour		
		Percapita (hours)	Total (millions of hours)	Per hour (sucres)	Total (millions of sucres)	Day-wages per hectare (sucres)
otal	1 175.9	517	608.0	1.52	906.4	770
Wheat	65.4	319	21.0	0.72	15.1	230
Maize	240.3	521	126.2	0.87	110.4	460
Barley	132.6	265	35.4	0.69	24.4	185
Rice	92.9	1 051	99.6	1.85	184.1	1 980
Potatoes	31.8	832	26.9	0.75	20.2	635
Yucca	15.8	821	13.0	1.28	16.6	1 050
Other tubers[a]	11.1	513	5.7	0.67	3.8	340
Lentils	8.2	242	2.0	0.58	1.2	140
Lima beans	19.4	338	6.5	0.58	3.8	195
Peas	18.5	338	6.2	0.73	4.6	245
Beans	31.4	479	15.3	0.84	12.9	410
Cotton	24.0	521	12.5	1.29	16.2	675
Sugar-cane for spirit	8.5	1 502	12.8	1.35	17.3	2 040
Sugar-cane for panela	21.0	1 632	34.3	1.50	51.4	2 450
Sugar-cane for centrifugal sugar	12.2	416	5.1	2.59	13.1	1 070
Plantains	48.2	241	11.6	1.72	20.0	415
Bananas	147.4	536	79.0	2.64	208.9	1 415
Cacao	144.3	221	31.9	2.35	75.0	520
Coffee	82.7	597	49.4	1.87	92.5	1 120
Tobacco	0.9	618	0.5	2.11	1.2	1 285
Vegetables	5.7	1 075	6.2	0.60	3.7	650
Peanuts	4.0	786	3.1	1.34	4.2	1 055
Miscellaneous fruit[b]	9.6	405	3.9	1.54	6.0	625

OURCES Estimates prepared on the basis of field data obtained with the collaboration of technical experts from the Ministry of Development and the National Economic Planning and Co-ordination Board.
Sweet potatoes, *ocumo*, *ñame*, etc.
Pineapples, custard apples *(chirimoyas)*, apples, peaches, avocados, pears, plums, mangoes and miscellaneous citrus fruits.

ash remuneration and, where relevant, an estimate of the cost the entrepreneur of providing free food rations).

On the basis of these data, estimates were made for labour uts in terms of each crop, and these were in their turn ighted in respect of the area covered. In this way, a weighted erage of labour inputs in each crop was obtained for the whole untry. When information had been collected regarding the area wn and the area harvested and, by subtraction, the area that s sown and lost, an estimate was made of the labour input at went into the preparation of the soil and the sowing of the t portion.

Table 26 gives a summary of all these calculations. In 1955, area sown amounted to 1 175 900 hectares with a total labour ut of 608 million hours for which remuneration was approxi- tely 907 million sucres.

The figures of 907 million sucres includes not only cash pay- nts and the cost of food provided free by entrepreneurs for ir wage-earners, but also the remuneration of the labour of all farmers, including family help, which was included in the re paid by entrepreneurs in the different localities.

Another special survey was carried out to determine the amount labour inputs in livestock breeding. The agricultural census of 4 was also useful in this respect, as it provided information provinces of the number of stock-breeding farms classified ording to size, with background information about the total l average number of head of stock per farm. These data were d to establish the number of persons required on an average l throughout the year to look after herds of different sizes and remuneration they received. Data for labour employed in k breeding included the percentage of labour required for care of pasture land, whether natural or artificial. The results all these tabulations appear in table 27. They show that em- yment in stock breeding amounted to 773 million hours of k and a remuneration of 465 million sucres.

astly, an estimate was made, which also appears in table 27, of the manpower employed in various occupations, including farm management, transport, marketing, building maintenance, machinery, etc. To calculate the manpower employed in farm management, farms were classified in three groups according to size (up to 5 hectares, 5 to 100 hectares, and over 100 hectares), and estimates were made on the basis of personal observations, and data provided by experts and farmers of the input at each of these levels. The final results show that the total hours worked in farm management is somewhat more than 80 million.

With respect to marketing, account was taken of a custom which is very wide-spread, particularly among small farmers in the Sierra; this is to attend fairs and markets in person to sell part of their harvest. Based on the size of farms, an approximate estimate was made of the number of people attending the fairs, labour input in this respect being established at some 45 million hours.

A separate calculation was made for labour employed in capital formation, i.e., the labour employed in increasing and replacing orchards and plantations including sugar-cane, and artificial pasture. Account was taken not only of the labour employed during the first year of establishment of a plantation but also of that employed in plantations and orchards which have not yet come into production. For example, only 6 700 hectares of new coffee plantations were established (see again table 18, but at the same time it was estimated that a total of 27 300 hectares of those recently established or planted in the preceding three years were not yet in production. The relevant data were collected in the manner already indicated for agriculture and these show that employment on the 110 000 hectares of plantations and 52 000 hectares of pasture land amounted to approximately 54 million in day wages (see table 28). It can be concluded from these data that total labour inputs amount to somewhat over 1 570 million hours at an approximate cost of 1 765 million sucres (see table 29).

Information on labour inputs per hectare was collected during

Table 27

ECUADOR: INPUT AND VALUE OF HUMAN LABOUR IN THE LIVESTOCK SECTOR AND OTHER AGRICULTURAL ACTIVITIES, 1955

	Inventories (thousands of head)	*Manpower input*		*Value of human labor*	
		Total (millions of hours)	*Per head (hours)*	*Per hour (sucres)*	*Total (millions of sucres)*
1. *Livestock sector*		*773.2*			*465.1*
Cattle					
General care	1 216	184.2	150	0.85	155.7
Dairy farming (milking) . . .	253	91.2	360	0.50	45.6
Sheep and goats	1 433	204.1	142	0.25	51.0
Pigs.	839	151.0	180	0.25	37.7
Horses, mules and asses[a].	135	18.9	140	0.30	7.6
Poultry	2 856	28.6	10	0.30	16.1
Care of natural pastures	1 225[b]	60.5	49[c]	1.45	87.7
Care of artificial pastures . . .	469[b]	34.8	74[c]	1.80	63.5
2. *Other agricultural activities* . . .		*135.1*		*2.0*	*274.2*
Farm management.		80.6		2.6	214.7
Transport of products to market		44.5		1.0	44.5
Maintenance of buildings, machinery, etc..		10.0		1.5	15.0

Source: Estimates prepared on the basis of field data obtained with the collaboration of technical experts from the Ministry of Development and the National Economic Planning and Co-ordination Board.

[a] Inventories of horses, mules and asses total 406 500 head. It is estimated that the care of approximately two thirds of the inventories is included under care of cattle. For this reason, only the remaining one third (135 000 head) is taken into consideration here.

[b] Hectares.

[c] Hours per hectare.

1959 and applied to the areas under cultivation in 1955. It is considered that this should not involve errors of any importance since there seem to have been no sweeping changes in methods of work and labour inputs between the two years.

2. *Amortization costs*

Depreciation and amortization costs apply to capital invested in buildings and installations, orchards and plantations including sugar-cane, artificial pastures and agricultural equipment (machinery and tools).

Amortization estimates for capital invested in buildings were made province by province on the basis of information collected on the spot and data provided by experts of the Ministry of Development who collaborated in the research. Amortization rates show substantial differences as between the Sierra and the Coast. On the Coast, they are very high as light construction materials with a short useful life are used. In the Sierra, on the other hand, buildings are usually more solid, being made, for example, of adobe and roofed with tiles. On the basis of the land tenure system and the size of farms in the Sierra, fairly accurate estimates could be made of the different qualities of building to which different amortization rates are applicable. The annual rate of 2 per cent for buildings in the Sierra appearing in table 30

Table 28

ECUADOR: INPUT AND VALUE OF HUMAN LABOUR IN CAPITAL FORMATION OPERATIONS, 1955

Sector	*Area (thousands of hectares)*	*Manpower inputs*		*Value of human labour*		
		Hours per hectare	*Total (millions of hours)*	*Per day's work (sucres)*	*Total (millions of sucres)*	*Day wages (sucres) per hectare*
1. *Crop sector*	*110.1*	*414*	*45.6*	*2.40*	*101.0*	*915*
Plantains	3.1	542	1.7	2.10	3.5	1 135
Bananas	17.8	685	12.2	2.55	31.0	1 745
Cacao	52.4	307	16.1	2.30	37.1	710
Coffee	27.3	354	9.7	1.95	18.8	690
Sugar-cane	8.3	680	5.7	1.70	9.8	1 180
Miscellaneous fruit[a] .	1.2	305	0.4	1.90	0.7	575
2. *Livestock sector* . . .	*52.1*	*164*	*8.6*	*2.00*	*17.4*	*335*
Artificial pasture . .	52.1	164	8.6	2.00	17.4	335

Sources: Tables 26 and 27.

[a] Citrus fruits, avocados, custard apples *(chirimoyas)*, peaches, pears, plums, mangoes and apples.

Table 29

ECUADOR: TOTAL INPUT AND VALUE OF HUMAN LABOUR IN AGRICULTURE, 1955

Activity	*Manpower (millions of hours)*	*Value (millions of sucres)*
arm operations:		
(*a*) Crop sector	608	906
(*b*) Livestock sector	773	465
ther activities	135	274
apital formation operations	54	118
Total	*1 570*	*1 763*

OURCE: Tables 26, 27 and 28.

s therefore a weighted average. A similar calculation was made or the Coast, where the weighted average rate of 7.5 per cent eflects the varying qualities of building already referred to.

In calculating the amortization rates for plantations and orhards, sugar-cane and artificial pasture, account was also taken f variations in the productive life of each in the various pronces, and this means that the average used reflects these eighted differences for the area which they cover.

Amortization rates for agricultural equipment were calculated n the basis of estimates made by the many experts and farmers who were consulted. The final estimate obtained was that the amortization of agricultural assets in 1955 amounted to 266 million sucres or slightly more than 5 per cent of the original capital outlay (see table 30).

3. *Maintenance*

Maintenance costs for the various types of capital were calculated on the basis of estimated rates for each of the main items. These costs do not include labour inputs which have already been considered above. Maintenance costs relate only to the purchase of materials and equipment or to skilled labour from outside the agricultural sector, as for example, the labour employed in the maintenance of machinery. For that reason, the rate of maintenance on buildings is lower on the Coast than in the Sierra, for although buildings in the coastal area involve higher maintenance costs, maintenance work is almost entirely confined to the use of labour for obtaining and subsequently using repair materials (*guadúa* cane, plantain leaves, etc.) which come from the agricultural sector itself. In 1955, maintenance costs would seem to have amounted to slightly over 69 million sucres (see table 31).

4. *Credit interest and commissions*

Development and private banks as well as individuals, particularly businessmen, constitute the main sources of credit for Ecuadorian agriculture.

The amount of the interest paid to the development and pri-

Table 30

ECUADOR: DEPRECIATION OF AGRICULTURAL ASSETS, 1955

	Original capital (millions of sucres)	*Depreciation*	
		Percentage	*Total (millions of sucres)*
Fixed capital			
(a) *Constructions and buildings*	*2 620.0*	*3.4*	*90.0*
Sierra			
Rural housing	1 837.3	2.1	39.5
Other construction works	154.6	2.0	3.1
Coast			
Rural housing	538.4	7.6	40.8
Other constructions and buildings	89.7	7.4	6.6
(b) *Installations*	*34.3*	*6.7*	*2.3*
(c) *Fencing*	*188.4*	*10.0*	*18.8*
(d) *Orchards and plantations*	*1 347.7*	*5.0*	*67.4*
Bananas	351.0	10.0	35.1
Plantains	76.5	10.0	7.7
Cacao	577.3	2.5	14.4
Coffee	315.4	3.0	9.5
Oranges and other citrus fruits	16.9	2.5	0.4
Miscellaneous[a]	10.6	3.0	0.3
(e) *Sugar-cane*	*178.4*	*9.0*	*16.1*
(f) *Artificial pastures*	*428.6*	*10.0*	*42.9*
Movable capital	*187.2*	*15.0*	*28.1*
Tractors	86.6	10.0	8.7
Ploughs and harrows	27.4	10.0	2.7
Seeders and fertilizer distributors	2.5	12.5	0.3
Threshing and winnowing machines	4.1	10.0	0.4
Reapers, binders and stackers	4.1	14.0	0.6
Grinding and mincing machines	16.5	10.0	1.7
Hullers, sorters and shellers	10.3	16.7	1.7
Dairy farm equipment	4.0	12.5	0.5
Miscellaneous tools	14.4	50.0	7.2
Machinery not normally in use	17.3	25.0	4.3
Total	*4 984.7*	*5.3*	*265.6*

SOURCES Estimates prepared on the basis of various data furnished by Ecuadorian farmers and experts.

[a] Plums, custard apples *(chirimoyas)*, peaches, apples, pears, avocados and mangoes.

Table 31

ECUADOR: EXPENDITURE ON MAINTENANCE OF AGRICULTURAL ASSETS, 1955

(Millions of sucres)

	Original capital	Maintenance	
		Percentage	Total
Fixed capital			
(a) *Constructions and buildings*	*2 620.0*	*1.7*	*45.3*
Sierra			
Rural housing	1 837.3	2.0	36.7
Other constructions and buildings	154.6	1.5	2.3
Coast			
Rural housing	538.4	1.0	5.4
Other constructions and buildings	89.7	1.0	0.9
(b) *Installations*	*34.3*	*5.0*	*1.7*
(c) *Fencing*	*188.4*	*6.0*	*11.3*
Movable capital	*187.2*	*5.8*	*10.8*
Tractors	86.6	6.0	5.2
Ploughs and harrows . . .	27.4	5.0	1.4
Dairy farm equipment . .	4.0	8.0	0.3
Miscellaneous machinery .	54.8	6.0	3.3
Miscellaneous tools . . .	14.4	4.0	0.6
Total	*3 029.9*	*2.3*	*69.1*

SOURCE: Official statistics.

vate banks was established on the basis of the volume of credit granted. The interest paid to individual private and business lenders was estimated on the basis of the value of the output of small farmers, a group to which banking facilities are normally not available.

The percentage of the national agricultural output provided by producers with farms of less than 10 hectares was about 22 per cent, according to the 1954 agricultural census, and it is assumed that the same conditions prevailed in 1955. This would mean that out of the total production for 1955, valued at 4 052 million sucres on the basis of prices paid to producers at the farm, 892 million sucres was paid to farms of less than 10 hectares.

If it is further realized that bank credit provided by development and private banks was intended only for entrepreneurs managing farms of more than 10 hectares, it will be seen that the credit made available represented approximately 8 per cent of the value of output. It seems reasonable to suppose that small

Table 32

ECUADOR: ESTIMATE OF INTEREST PAID BY FARMERS ON LOANS OBTAINED FROM PRIVATE AND COMMERCIAL SOURCES, 1955

	Millions of sucres
Total value of Ecuador's agricultural production	4 052
Value of agricultural production on farms of less than 10 hectares	892
Approximate amount of credit obtained from private and commercial sources by producers farming less than 10 hectares	135
Interest paid on said credit (25 per cent) . .	34

SOURCE: Estimates based on official production and credit statistics of the established banking system.

Table 33

ECUADOR: TOTAL INTEREST AND COMMISSIONS ON CREDIT PAID BY FARMERS IN 1950-58

(Millions of sucres)

Year	To development banks[a]	To private banks[b]	To private individuals[c]	Total
1950 . . .	19.2	3.8	—	—
1951 . . .	16.1	2.4	—	—
1952 . . .	18.7	2.5	—	—
1953 . . .	19.5	3.7	—	—
1954 . . .	20.0	5.4	—	—
1955 . . .	26.1	6.4	33.8	66.3
1956 . . .	25.4	6.2	—	—
1957 . . .	30.2	8.1	—	—
1958 . . .	26.6	10.1	—	—

SOURCE: Estimates based on the bulletins of the *Banco Central del Ecuador.*

[a] Estimated on loans granted at a combined rate of 10 per cent covering both interest and commissions.

[b] Estimated on loans granted at a combined rate of 12 per cent covering both interest and commissions.

[c] See table 32.

farmers require a larger volume of credits. If a figure of 15 per cent of the value of output is taken as suitable for small farmers, the volume of credit would amount to 135 million sucres which, at an annual interest rate of 25 per cent, would provide a total of approximately 34 million sucres paid in interest.

It is very likely that many of the producers who work farms of less than 10 hectares have in fact received aid in the form of credits through the normal banking system, and it is equally possible that some other producers with larger farms have received credit facilities from individuals and businessmen. The resulting adjustment would bring the above calculation more closely into line with the facts (see table 32).

To sum up, the expenditure of farmers on commission and interest payments in 1955 apparently amounted to 66 million sucres (see table 33).

C. TAXES

The taxes payable on agricultural holdings in Ecuador are collected by municipalities. The revelant data were gathered by the Office of the Controller (*Contraloría General de la Nación*) and the National Planning and Economic-Co-ordination Board (*Junta Nacional de Planificación y Coordinación Económica*) (see table 34).

Table 34

ECUADOR: TAX ON AGRICULTURAL HOLDINGS, 1950-58

Year	Millions of sucres
1950	12.0[a]
1951	12.0[a]
1952	14.0[a]
1953	15.4
1954	16.8
1955	15.3
1956	18.7
1957	18.9
1958	19.4

SOURCE: Office of the Controller *(Contraloría General de la Nación)* and National Economic Planning and Co-ordination Board.

[a] Estimate based on data available for earlier and later years.

Table 35 summarizes the valuation of the agricultural assets in 1955 (as in the case of inputs, at 1955 prices). For this purpose, direct research had to be undertaken, as described in the following pages. Capital is classified under the three headings of fixed capital, movable capital and circulating capital. Total agricultural assets in 1955 amounted to some 7 700 million 1955 sucres. This figure represents amortized capital calculated at 1955 replacement cost.

A. Fixed capital

1. *Soil improvement*

Investment in soil improvement consists of clearing, irrigation and drainage.

(a) *Clearing*

To establish the investment in clearing the land currently used for agriculture and livestock production, the extent of the original tree coverage on the land and the approximate cost of removing it had to be determined. A detailed survey carried out by the National Economic Planning and Co-ordination Board which classifies the whole of Ecuador by agricultural zones, dividing it into fifteen zones according to soil, altitude, climate, vegetation, and rainfall, was available for this purpose. All the data provided by the 1954 agricultural census was reclassified according to these agricultural zones, on the basis of the original census forms. Fewer zones were required for the purpose of establishing investment in clearing, and the zones were regrouped on the basis of the approximate cost of clearing. Thus it was sufficient to establish three zones or groups in the Sierra area. One is in the *páramo* region, consisting of land above the altitude of 3 000 metres, usually unwooded and covered with low vegetation which can be used for forage; when used for cultivation this land requires practically no expenditure for clearance. The second zone is composed of crops and grassland, at an altitude of less than 3 000 metres and originally densely forested. The third mountain zone consists of an area with scanty rainfall, where dry scrub had to be removed.

Only two groups had to be established in the coastal area, one consisting of land densely covered with tall trees and usually three or four strata of vegetation, and another composed of areas with less rainfall where the tree coverage is sparser and lower.

Once this classification had been made, the areas used for agriculture and livestock production were allocated to the various groups. Thus the 249 000 hectares devoted to maize, for example, were distributed as follows in 1955:

	Thousands of hectares
Sierra area	*161.7*
Páramo zone	42.1
Crop and grassland zone	91.0
Arid zone	28.6
Coastal area	*87.0*
Dense forest zone	67.0
Less densely forested zone	20.0
Total	*248.7*

The figures in table 36 indicate that of the 3.4 million hectares devoted to agriculture, 1.6 million were in the Sierra area, distributed as follows: 912 000 in the páramo zone, 386 in the crop and grassland zone, and 280 in the arid zone. Slightly over 1.8 million hectares were in the coastal area, mainly in the zone with the heaviest rainfall.

The cost of clearing in each of these zones was established on the basis of the information supplied about the land by farmers and experts. It includes labour, amortization of the machinery and equipment used and general administrative costs. Investment for this purpose amounted to 685 million sucres, of which 92 million was for the Sierra area and 594 million for the coastal area (see table 37).

(b) *Irrigation*

Data on the area under irrigation were collected during the 1954 agricultural census and tabulated by the National Economic Planning and Co-ordination Board. The figures are known to be unduly low, since this land is liable to a higher tax and the farmers therefore give incomplete information. This information was, however, partly rectified when more reliable data were obtained in some provinces.

Investment in irrigation has been made both by the Government and by private enterprise. Government investment is very limited; it is undertaken by an official agency, the National Irrigation Fund (*Caja Nacional de Riego*). Data relating to investments and the area benefiting therefrom were available. However, the works carried out by private enterprise provide the basis of irrigation in Ecuador. Investment in these works was determined on the basis of the cost per hectare of the irrigation works carried out by the States in the same areas and the cost of other projects studied by the government agency. These figures were adjusted if it appeared that the private enterprise works were simpler and consequently cheaper. It is estimated that the total investment in irrigation amounts to approximately 533 million sucres at 1955 prices (see table 38).

There is practically no information on the area drained, although this is fairly extensive, especially in the coastal area. The data available are incomplete and relate only to works and investments by the National Irrigation Fund, and by private enterprise and autonomous institutes in the last few years.

The situation with respect to investment in irrigation and drainage can be summed up by saying that the estimates are too low because there is no complete inventory of these improvements.

Table 35

ECUADOR: SUMMARY OF VALUATION OF AGRICULTURAL ASSETS, 1955

(Millions of sucres at 1955 prices)

A. *Fixed capital*		*3 578*
1. *Land clearing and improvement*	*1 235*	
(a) Clearing and cleaning	685	
(b) Other improvements: irrigation	533	
drainage	17	
2. *Buildings, installations and fencing*	*1 435*	
(a) Rural housing	1 172	
(b) Other buildings	128	
(c) Installations	14	
(d) Fencing	121	
3. *Plantings*	*908*	
(a) Fruit tress and industrial crops	669	
(b) Artificial pastures	214	
(c) Artificial forests	25	
B. *Movable capital*		*2 972*
1. *Cattle inventories*	*2 860*	
Cattle	1 605	
Sheep	125	
Pigs	479	
Goats	11	
Horses, mules and asses	640	
2. *Agricultural machinery*	*112*	
Tractors	49	
Other	63	
C. *Circulating capital*	*1 128*	*1 128*
Total value of agricultural assets		*7 678*

Source: Tables 36 to 46.

Table 36

ECUADOR: AREA DEVOTED TO AGRICULTURE AND LIVESTOCK, CLASSIFIED ACCORDING TO ORIGINAL TREE COVERAGE, 1955

(Thousands of hectares)

	Sierra area			*Coastal area*		
	Páramo zone	*Crop and grass-land zone*	*Arid zone*	*Dense forest zone*	*Medium tree coverage zone*	*Total*
Annual and semi-perennial crops	*217.2*	*209.0*	*78.6*	*400.9*	*105.3*	*1 011.0*
Maize	42.1	91.0	28.6	67.0	20.0	248.7
Barley	83.4	31.9	13.9	6.1	—	135.3
Beans	4.4	22.2	3.3	4.1	0.2	34.2
Wheat	34.6	25.3	2.8	4.0	—	66.7
Potatoes	20.6	6.6	4.4	2.8	—	34.4
Rice	—	—	0.5	71.0	34.0	105.5
Sugar cane	—	—	12.4	35.7	1.8	49.9
Bananas	—	—	4.0	138.7	22.5	165.2
Plantains	—	—	1.0	39.5	10.8	51.3
Other[a]	32.1	32.0	7.7	32.0	16.0	119.8
Perennial crops	—	*1.5*	*12.3*	*254.2*	*52.6*	*320.6*
Cacao	—	—	0.2	187.5	9.0	196.7
Coffee	—	—	7.6	63.7	38.5	109.8
Other[b]	—	1.5	4.5	3.0	5.1	14.1
Fallow land	*41.4*	*23.6*	*14.6*	*184.0*	*80.7*	*344.3*
Artificial pastures	*58.5*	*26.1*	*20.6*	*260.7*	*149.6*	*515.5*
Natural pastures or páramos	*594.6*	*126.1*	*154.3*	*242.9*	*106.8*	*1 224.7*
Total	*911.7*	*386.3*	*280.4*	*1 342.7*	*495.0*	*3 416.1*

SOURCE: 1954 agricultural census and National Economic Planning and Co-ordination Board.

[a] Peas, lime beans, lentils, oats, root crops and various cereals of secondary importance, yucca, cotton, tobacco, groundnuts, castor-oil plants and various market-garden crops.

[b] Plantings of plums, custard apples *(chirimoyas)*, peaches, apples, pears, avocados, lemons, coconuts, mangoes, oranges and other fruits of secondary importance.

2. *Buildings, installations and fencing*

(a) *Rural housing and other buildings*

No reliable estimate of investment under this heading was available, but its calculation was essential for completion of the inventory of capital investment and subsequent determination of amortization and maintenance costs. Consequently, a survey was planned with the collaboration of government experts — mainly from the Ministry of Development — posted to the provinces and with a good knowledge of the area where they work; this survey was greatly facilitated by the largely similar type of buildings in the various parts of the country.

For this purpose, the data provided by the 1954 agricultural census were used, giving the number of agricultural enterprises in each province, classified according to land tenure (ownership, tenancy, sharecropping, such other special local forms of tenancy as that of the *huasipungueros, comuneros* and *colonos*, and mixed forms). These data were then related to the size of the holdings, which, for the purposes of the survey, were divided into four groups: up to 10 hectares, from 10 to 50 hectares, from 50 to 500 hectares, and over 500 hectares. Information as to the number of holdings according to type and size was highly relevant, since the number and value of buildings vary markedly in accordance with these factors. The government experts in each province who assisted with the survey provided information on the average number of buildings — for housing, storage or stabling — on each type of holding according to tenure and size. They also provided information on the average cost of buildings, based on current costs of such improvements, and estimates of their age and remaining useful life; on this basis it was possible to calculate the amount originally invested, capital depreciation to date and annual amortization.

The results of this study show that the original investment for buildings at 1955 prices amounted to approximately 2 600 million sucres, now reduced by amortization to about 1 300 million sucres (see table 39).

(b) *Installations*

It was possible to determine the capital invested in installations only for coffee processing and the production of *panela,* cane

Table 37

ECUADOR: VALUE OF LAND IMPROVEMENT (CLEARING COSTS) THROUGH THE CLEARING AND CLEANING OF AGRICULTURAL AND LIVESTOCK LAND AT 1955 PRICES

Area and zone	*Area (thousands of hectares)*	*Value per hectare (sucres)*	*Total value (millions of sucres)*
Sierra area	*1 578.4*	*58*	*91.6*
Páramo zone	911.9	—	—
Cereal and grassland zone	386.3	150	57.9
Arid zone	280.2	120	33.6
Coastal area	*1 837.7*	*323*	*593.7*
Dense forest zone	1 342.7	350	469.9
Medium tree coverage zone	495.0	250	123.8
Total	*3 416.1*	*201*	*685.3*

SOURCE: Calculations based on the data in table 36.

Table 38

ECUADOR: AREA IRRIGATED AND DRAINED AND CORRESPONDING INVESTMENTS

(At 1955 prices)

	National Irrigation Fund			*Private enterprise*			
	Area covered (thousands of hectares)	*Investment per hectare (thousands of sucres)*	*Total investment (millions of sucres)*	*Area covered (thousands of hectares)*	*Investment per hectare (thousands of sucres)*	*Total investment (millions of sucres)*	*Total (millions of sucres)*
Irrigation	*6.4*	*11.6*	*74.4*	*166.6*	*2.7*	*458.6*	*533.0*
Sierra area. . .	2.6	23.1	63.4	139.2	3.0	417.5	479.9
Coastal area . .	3.8	3.3	12.0	27.4	1.5	41.1	53.1
Drainage	*2.3*	*1.0*	*2.3*	*5.7*	*2.5*	*14.3*	*16.6*
Total			*76.7*			*472.8*	*549.5*

SOURCE: National Irrigation Fund, National Economic Planning and Co-ordination Board, and estimates.

rit and syrup. In the first case, the data were available from Ecuador Coffee Institute (*Instituto Ecuatoriano del Café*), d in the last two from the Department of State Monopolies *irección de Monopolios del Estado*). No information was availa- as to inventories of other types of installations, such as those ed on cacao plantations, and on banana plantations (for disease ntrol), windmills, etc. (see table 40).

) Fencing

Cattle ranches and farms in Ecuador are marked off by wire ces, adobe walls or ditches, according to the region and the of the holdings. The information necessary to estimate the mber of the last two was not available. The amount of wire cing was determined on the basis of imports of barbed wire. Inquiries led to the conclusion that in Ecuador such fences have an average life of ten years. As all wire is imported, it was assumed that the amount of wire fencing would correspond to the total amount of wire imported during the last decade. In addition, it was established that the most widely used type was the three-strand fence with posts every four metres. Thus the original investment per kilometre of fencing at 1955 prices would be:

	Thousands of sucres
3 000 metres of barbed wire (375 kg at 3.63 sucres) . . .	1.4
250 posts at 2.50 sucres.	0.6
Labour and clamps.	0.5
Total.	2.5

Table 39

ECUADOR: VALUE OF RURAL BUILDINGS

(Millions of sucres at 1955 prices)

Province	*Original capital*			*Amortized capital*		
	Housing	*Storage and stabling*	*Total*	*Housing*	*Storage and stabling*	*Total*
Sierra area	*1 837.3*	*154.6*	*1 191.9*	*902.8*	*83.3*	*986.0*
Azuay . . .	192.9	11.1	204.0	96.2	4.8	101.0
Bolívar . .	117.1	0.2	117.3	58.1	0.1	58.2
Cañar . . .	104.2	5.5	109.6	51.7	3.6	55.2
Carchi . . .	217.2	41.7	258.9	94.0	20.9	114.8
Chimborazo.	79.5	5.9	85.4	39.3	3.2	42.4
Cotopaxi . .	127.0	8.1	135.1	52.9	3.7	56.6
Loja . . .	220.6	10.6	231.3	108.9	5.3	114.1
Imbabura. .	239.2	6.1	245.3	148.7	3.4	152.1
Pichincha .	368.5	58.0	426.5	183.3	34.8	218.0
Tungurahua	171.0	7.5	178.5	69.7	3.5	73.3
Coastal area	*538.4*	*89.7*	*628.1*	*269.1*	*44.9*	*314.0*
El Oro . .	9.4	1.2	10.6	4.6	0.6	5.2
Esmeraldas .	38.6	2.9	41.5	19.3	1.5	20.8
Guayas . .	195.6	12.9	208.6	97.8	6.5	104.3
Los Ríos . .	103.9	53.8	157.7	51.9	26.9	78.9
Manabi . .	190.9	18.8	209.8	95.5	9.4	104.9
Total	*2 375.6*	*244.3*	*2 620.0*	*1 171.8*	*128.1*	*1 300.0*

SOURCE: Estimated by ECLA on the basis of information obtained in the field from exports of the Ministry of Development and the National Economic Planning and Co-ordination Board.

Table 40

ECUADOR: SOME AGRICULTURAL INSTALLATIONS, 1955

(Millions of sucres at 1955 prices)

		Original value	*Depreciated value*
Coffee processing installations		*5.3*	*2.7*
3 150 iron depulpers at . . .	1 200 sucres	3.8	1.9
1 000 iron depulpers at . . .	1 000 sucres	1.0	0.6
2 000 wooden depulpers at . .	250 sucres	0.5	0.2
Installations for the production of panela, cane spirit and syrup		*29.0*	*11.7*
3 990 sugar mills at	5 000 sucres	20.0	8.0
1 635 evaporators at	2 000 sucres	3.3	1.6
3 862 boiling vats at	500 sucres	1.9	0.6
378 stills at	8 000 sucres	3.8	1.5
Total		*34.3*	*14.4*

Source: Ecuador Coffee Institute and State Alcohol Monopoly *(Estanco de Alcoholes del Estado)*.

The calculations made indicated that there were 77 360 kilometres of fencing, representing an original investment of 188 million sucres, which at 1955 prices represents a capital of 120 million (see table 41).

3. *Plantings*

Most of the investment in plantings represents orchards and plantations (bananas, plantains, cacao, coffee and others), sugar-cane, artificial pastures and artificial forests. In some cases data were available as to the area cultivated (bananas and plantains), whereas in others only the nmber of plants was known, and the area was calculated on the basis of the most common planting density.

The original investment (at 1955 prices) was calculated on the basis of information supplied by experts of the Ministry of Development and other departments with respect to the cost of establishing plantings for each species, which include all costs from the time of planting until the time when commercial production begins.

The findings indicated the there were approximately 532 000 hectares of orchards and plantations in Ecuador, representing an original investment of 1 348 million sucres; 50 000 hectares of sugar-cane, with an original investment of 178 million sucres, and 521 000 hectares of artificial pastures, with an original investment of about 430 million sucres (see table 42). With the assistance of various forestry experts, the area of artificial forest was estimated as 50 000 hectares.

To sum up, the total original investment in these improvements in 1955 amounted to 1 980 million sucres which, allowing for depreciation, represents a present capital of 908 million sucres.

B. Movable capital

1. *Livestock inventories*

The livestock population was known, thanks to the surveys made by the former Permanent Office of Agricultural Statistics (*Oficina Permanente de Estadísticas Agropecuarias*) and to the 1954 agricultural census. In the case of cattle, information on the break-down by age and sex was available. The capital represented by the livestock was calculated on the basis of data supplied in each province by the officials from the Ministry of Development (*Ministerio de Fomento*). As a result, the unit value of the different species and ages given in table 43 corresponds to an average weighted price for the whole country. As may be seen from this table, the value of livestock inventories rose to 2 860 million sucres in 1955.

2. *Agricultural equipment*

An inventory and valuation of agricultural equipment were simplified by the fact that virtually all such equipment is imported. Current stocks of the different types of machinery and equipment in 1955 and the original investment at 1955 prices were ascertained. Depreciation was worked out on the basis of the estimated useful life of each piece of equipment.

For example, in the case of "ploughs and harrows", the amount of equipment imported and its f.o.b. cost at 1955 prices were first determined, and then the additional charges payable on the

Table 41

ECUADOR: CALCULATION OF THE AMOUNT OF AND INVESTMENT IN WIRE FENCING, 1946-58

(Millions of sucres at 1955 prices)

Year	*Imports of barbed wire (thousands of tons)*	*Fencing put up (thousands of km)*	*Original investment*[a]	*Depreciated value in 1955*[b]	*Situation in 1955*		
					Total fencing (km)	*Original investment*	*Depreciated investment*
1946	0.4	1.1	2.8	0.3			
1947	1.0	2.7	6.5	1.3			
1948	1.5	4.0	9.7	2.9			
1949	2.8	7.4	18.0	7.2			
1950	4.6	12.3	30.1	15.0			
1951	5.0	13.5	32.8	19.7			
1952	2.5	6.6	16.0	11.2			
1953	5.7	15.1	36.9	29.5			
1954	3.3	8.7	21.2	19.1			
1955	2.2	5.9	14.4	14.4	77.4	188.4	120.7
1956	2.5	6.7	16.3				
1957	2.1	5.6	13.6				
1958	2.1	5.5	13.4				

Source: Estimates based on foreign trade statistics.

[a] At 2 436 sucres per kilometre.

[b] An amortization of 10 per cent for wire and labour and 20 per cent for posts gives a weighted average of 12 per cent.

Table 42

ECUADOR: VALUE OF LAND UTILIZATION IN THE FORM OF PLANTINGS AND ARTIFICIAL PASTURES AND FORESTS; ORIGINAL COST AND PRESENT DEPRECIATED VALUE

(At 1955 prices)

	Area (thousands of hectares)	*Investment per hectare (sucres)*	*Total original investment (millions of sucres)*	*Depreciation (Percentage)*	*Present value of assets (millions of sucres)*
Orchards and plantations	*532.4*	*2 531*	*1 347.7*	—	*579.2*
Bananas	165.2	2 125	351.0	50	175.5
Plantains	51.3	1 490	76.5	55	34.4
Cacao	196.6	2 935	597.3	60	230.9
Coffee	110.0	2 865	315.4	60	126.2
Plums	0.2	750	0.2	50	0.1
Custard apples *(chirimoyas)*	1.2	1 620	2.0	50	1.0
Peaches	0.5	850	0.4	50	0.2
Apples	1.3	1 405	1.9	50	1.0
Pears	0.5	785	0.4	50	0.2
Oranges and other citrus fruits	3.7	4 550	16.9	60	6.8
Avocados	1.4	2 765	3.9	50	2.0
Mangoes	0.5	3 610	1.8	50	0.9
Industrial crops					
Sugar-cane	*50.0*	3 365	*178.4*	50	*89.2*
Artificial pastures	*520.8*	825	*428.6*	50	*214.3*
Artificial forests	*50.0*	500	*25.0*	—	*25.0*
Total	*1 153.2*		*1 979.7*		*907.7*

Source: Calculated from basic data provided by the 1954 agricultural census and information supplied by experts of the Ministry of Development and the National Economic Planning and Co-ordination Board.

	Thousands of sucres per ton
F.o.b. price	8.9
Surcharge on f.o.b. price before goods have fully entered the country 16.34 per cent)	1.5
Importers' and distributors' profits (30 per cent)	3.1
Price paid by farmers	13.5

goods before they finally reached the producer, as follows: freight, insurance, customs duties and importers' and distributors' profits.

A useful life of ten years was assumed for ploughs and harrows. This means that stocks in 1955 were of items that had been imported after 1946. The initial investment was calculated at 1955 values on the basis of the f.o.b. price. This was also the

Table 43

ECUADOR: VALUE OF CATTLE INVENTORIES, 1955

(At 1955 prices)

	Inventories (thousand head)	*Unit value (sucres)*	*Total value (millions of sucres)*
Cattle	*1 168.9*	*1 370*	*1 604.6*
Calves, male and female less than a year old	247.0	380	93.9
Bull calves one to two years old	116.1	770	89.2
Steers and bull over two years old	51.5	1 230	63.1
Draft oxen	122.2	1 585	193.5
Stud bulls	22.8	3 860	88.0
Heifers over two years old	179.2	1 135	203.6
Milk cows	245.9	2 345	576.9
Dry cows and cows being fattened	184.2	1 610	296.4
Sheep	*1 296.2*	*95*	*124.8*
Pigs	*838.7*	*570*	*478.8*
Goats	*136.7*	*80*	*11.3*
Horses	*184.6*	*1 550*	*285.8*
Mules and asses	*221.9*	*1 600*	*354.5*
Total			*2 859.7*

Source: Permanent Office of Agricultural Statistics *(Oficina Permanente de Estadísticas Agropecuarias)* and Ministry of Development.

Table 44

ECUADOR: ESTIMATED CAPITAL IN PLOUGHS AND HARROWS, 1945-58

(At 1955 prices)

Year	Imports: Amount (tons)	Imports: Fob price (thousands of sucres per ton)	Price paid by the farmer: Thousand of sucres per ton	Price paid by the farmer: Total (millions of sucres)	Depreciation percentage with respect to 1955	Capital depreciated in 1955 (millions of sucres)	Stocks in 1955: Original capital (millions of sucres)	Stocks in 1955: Depreciated capital (millions of sucres)
1945	34.9			0.5	100	—		
1946	80.6			1.1	90	0.1		
1947	100.0			1.3	80	0.3		
1948	111.1			1.5	70	0.4		
1949	217.8			2.9	60	1.2		
1950	199.0			2.7	50	1.3		
1951	250.0			3.4	40	2.0		
1952	186.8			2.5	30	1.8		
1953	206.5			2.8	20	2.2		
1954	320.8			4.3	10	3.9		
1955	367.7	8.9	13.5	4.9	0	4.9	27.4	18.1
1956	183.3			2.5				
1957	161.1			2.2				
1958	117.8			1.6				

Source: ECLA estimates on the basis of foreign trade statistics.

unit price adopted for computing, in terms of 1955 prices, the capital represented by ploughs and harrows imported in the previous decade.

As the equipment had been in use, the annual depreciation rate was estimated at 10 per cent. Hence, equipment of this kind imported in 1954 represented only 90 per cent of the original capital by 1955, while purchases in 1953 represented 80 per cent. This process was continued until 1946, since imports in that year had fully depreciated by 1955. Thus, ploughs and harrows imported between 1946 and 1955 constituted the inventory for the latter year and their purchase required an original investment of 27.4 million sucres, reduced by depreciation to 18.1 million sucres (see table 44).

A similar calculation was made for each of the ten principal items of agricultural machinery and equipment. The results show that the stock of equipment in 1955 represented an initial investment of 187 million sucres, which had depreciated to 112.6 million by 1955 (see table 45).

In the case of tractors, only those classified as agricultural on their entry into the country were included in the inventory, the resulting figure then being reduced by 10 per cent as a safety margin. This latter percentage included equipment which, though agricultural, was not intended for use on farms.

Ecuadorian statistics register imports of agricultural machinery by weight only. For instance, they give the total tonnage of the tractors brought into the country but do not specify the number of units. Information on numbers was needed — at least for the more important machinery — in order to complete the analysis of the data, particularly with respect to the extent to which modern techniques had been introduced into farming. The information was obtained through the medium of United States statistics on exports to Ecuador, which are expressed in terms

Table 45

ECUADOR: VALUE OF IMPORTED AGRICULTURAL EQUIPMENT, 1955

(At 1955 prices)

	Import period: Dates	Import period: Number of years	Value of equipment (millions of sucres): Price paid by the farmer	Value of equipment (millions of sucres): Depreciated and at replacement cost
Tractors	1946-55	10	86.6	49.3
Ploughs and harrows	1946-55	10	27.4	18.1
Seeders and fertilizer distributors	1948-55	8	2.5	1.7
Threshing and winnowing machines	1946-55	10	4.1	2.1
Reapers, binders and stackers	1949-55	7	4.1	3.3
Grinding and mincing machines	1946-55	10	16.5	12.2
Hullers, sorters and shellers	1950-55	6	10.3	4.6
Dairy-farm equipment	1948-55	8	4.0	2.1
Miscellaneous tools[a]	1954 & 1955	2	14.4	9.9
Machinery not normally in use	1952-55	4	17.3	9.2
Total			*187.1*	*112.6*

Source: Estimates based on foreign trade statistics.

[a] Axes, hatchets, adzes, spades, shovels, hoes, mattocks, machetes, picks, pickaxes and pruners.

weight and units, since most of the machinery imported by uador is of United States origin.

C. Circulating capital

e circulating capital required for agricultural activities was lculated on the basis of inputs in the sector. The special fea-es of farming in Ecuador are not such that capital needs be available on a scale equivalent to expenditure. In fact, the ter is defrayed in the course of the year, and during the pro-ction cycle the entrepreneur receives an income from the sale various commodities such as milk, eggs, fruit, vegetables, etc., ich helps to finance the enterprise.

For payment of labour, it was estimated that a capital sum uivalent to 50 per cent of total remuneration was sufficient; seeds, the proportion was 80 per cent; in the case of manure d fertilizer it was as little as 50 per cent since both are largely ed for the banana plantations which are in more or less continuous production during the whole year; for fodder and livestock feed, it was fixed at only 30 per cent, since the major part was produced in the sector itself; for vaccines and medicaments, as well as fuels and lubricants, it was estimated at 75 per cent; for sacks, bags and cordage it was estimated to be 25 per cent, since these inputs call for short-term financing beginning near harvest-time; against maintenance costs it was thought wise to allow 30 per cent since expenditure under this heading is not a regular item yearly but is generally effected when the farm has had a profitable period. Moreover, during these exceptionally bumper years, profits are drawn upon in preference to capital itself. Circulating capital was not deemed necessary to finance amortization costs. In respect of taxes, it was estimated that only 50 per cent would actually be paid.

Circulating capital for cattle fattening has not been taken into consideration since, unlike other countries, few farms in Ecuador specialize in cattle breeding or fattening. Circulating capital is estimated to have amounted to some 1 130 million sucres in 1955 (see table 46).

Table 46

ECUADOR: CIRCULATING CAPITAL IN AGRICULTURE, 1955

(Millions of sucres)

	Total cost	*Circulating capital*	
		Percentage of total cost	*Total*
Labour	1 764	50	882
Seeds.	112	80	90
Fertilizers and soil conditioners .	23	50	12
Animal feed	173	30	52
Vaccines and medicaments . . .	4	75	3
Fuels and lubricants	15	75	11
Sacks and bags	62	25	16
Maintenance	69	30	21
Interest and commission on loans	66	50	33
Indirect taxes	15	50	8
			1 128

Source: Calculated from basic data given in tables 18 to 34.

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